

**EXHIBIT 1-a to PLAINTIFFS’  
APPENDIX OF EXPERT REPORTS**

CONFIDENTIAL

Abatement Plan for Addressing the Opioid Crisis in Cabell County and the City of Huntington

Expert Witness Report of G. Caleb Alexander, MD, MS

August 3, 2020

Appendix A – Johns Hopkins Report: “From Evidence to Impact”

Appendix B – Curriculum vitae

Appendix C – List of sources that were consulted

Appendix D – Redress Model

## CONFIDENTIAL

### I. BACKGROUND AND QUALIFICATIONS OF AUTHOR

1. My name is G. Caleb Alexander. I am a practicing general internist and Professor of Epidemiology and Medicine at Johns Hopkins Bloomberg School of Public Health. I have been retained by Plaintiffs to provide my scientific expertise regarding the opioid epidemic, nationally and in the Cabell-Huntington Community (the “*Community*”), an Appalachian community rich in heritage that has been devastated by the opioid epidemic.<sup>a</sup> I have been asked to discuss ways to abate or reduce the harms caused by the oversupply of opioids into the Community. I have also been asked to estimate the size of specific populations that may require abatement interventions within the Community over a 15-year period, from 2021 to 2035, and to provide recommended cost estimates for certain abatement interventions (generally medical costs); the remaining costs are provided in the expert report of local forensic economist George A. Barrett. In his report, Mr. Barrett also calculates the total cost of my recommended abatement plan.
2. As a physician, I am responsible for the primary care of approximately 250 patients, most of whom live in and around Baltimore County. I have clinic one half-day per week and I am also responsible for patient care matters that arise at other times. The patients that I see range from young adults to nonagenarians (aged 90 – 99 years), and as a primary care physician I oversee their acute, preventive, and chronic needs, which include conditions such as asthma, diabetes, hypertension, osteoporosis, chronic pain, anxiety, and depression. While I do not specialize in the care of patients with opioid use disorder (OUD),<sup>b</sup> I have patients in my practice with OUD who I co-manage with addiction specialists, and I care for patients who have lost family members to fatal opioid overdoses.
3. In contrast to my work as a physician, as a pharmacoepidemiologist, I focus on “the study of the uses and effects of drugs in well-defined populations.”<sup>1</sup> Pharmacoepidemiology is a bridge discipline that combines insights and tools from clinical medicine, pharmacology, and epidemiology to generate fundamental new knowledge regarding the utilization, safety, and effectiveness of prescription drugs. It also concerns itself with understanding the effects of pharmaceutical policy, such as regulatory or payment policies that influence prescription drug use. As a pharmacoepidemiologist, much of my work has focused on the nature, quality, and determinants of prescription drug utilization in the United States, although I have also conducted or participated in many investigations examining the safety of specific products. I have used many different data for this work, often data that has already been assembled for other purposes, such as administrative claims data from health plans or large national surveys.

---

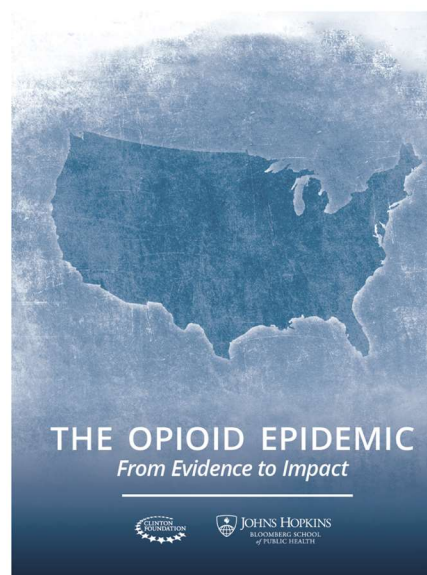
<sup>a</sup> Plaintiffs are Cabell County Commission and the City of Huntington, West Virginia. Throughout this report, the Cabell-Huntington Community or the Community refers to the entire community of Cabell County and the City of Huntington.

<sup>b</sup> Definitions of terms such as “opioid use disorder”, “addiction”, “non-medical opioid use”, and “misuse” are provided in Dr. Katherine Keyes’ expert report.

CONFIDENTIAL

4. During the past decade, I have devoted much of my professional time to addressing the opioid epidemic. I have served as one of three Co-Editors of monographs issued by the Johns Hopkins Bloomberg School of Public Health providing comprehensive, concrete, evidence-based solutions to the epidemic. These monographs were issued in October 2015 and October 2017 (**Figure 1**); the latter report is provided as **Appendix A**. I have also testified in front of the U.S. Senate and the U.S. House of Representatives; briefed groups such as the National Governors Association, the Food and Drug Administration, Congressional Black Caucus, Centers for Medicare and Medicaid Services, and the National Academy of Science, Engineering and Medicine; and participated in efforts to improve the safe use of prescription opioids within Johns Hopkins Medicine and other health systems. My work focused on the epidemic has been funded by the Department of Health and Human Services Assistant Secretary for Planning and Evaluation (DHHS/ASPE), the Centers for Disease Control and Prevention (CDC), the Robert Wood Johnson Foundation, and the National Institutes of Health (NIH).

Figure 1. Report on the Opioid Epidemic



5. I have published extensively about opioids, including analyses of prescription opioid use in the U.S.<sup>2,3</sup> as well as evaluations of the structure and impact of regulatory<sup>4,5,6,7,8,9,10,11,12,13,14,15,16,17</sup> and payment<sup>18,19,20,21,22</sup> policies on opioid prescribing, dispensing, and utilization. I have also co-authored policy perspectives,<sup>23,24</sup> a widely referenced public health review of the epidemic,<sup>25</sup> and a recent analysis of the potential impact of the coronavirus pandemic on the care of individuals with OUD.<sup>26</sup>
6. In addition to these studies, I have also led or participated in teams examining many other facets of the crisis, including: availability of naloxone in retail pharmacies;<sup>27</sup> opioid initiation among members of households with a prescription opioid user;<sup>28</sup> the effect of reformulated Oxycontin on opioid utilization;<sup>29</sup> physicians' knowledge and attitudes regarding non-medical opioid use;<sup>30</sup> use and impact of medication for opioid use disorder (MOUD);<sup>31,32,33</sup> the costs and healthcare utilization associated with high-risk opioid use;<sup>34</sup> use of automated algorithms to identify non-medical opioid use;<sup>35</sup> the relationship between high-risk patients receiving prescription opioids and high-volume prescribers;<sup>36</sup> opioid use and safety among individuals with human immunodeficiency virus (HIV),<sup>37,38</sup> chronic kidney disease,<sup>39,40,41</sup> or recent surgery;<sup>42,43,44,45,46</sup> and potential financial conflicts of interest among organizations opposed to the CDC's 2016 Guideline for Prescribing Opioids for Chronic Pain.<sup>47,48</sup>
7. The studies I have performed examining the opioid epidemic have used a variety of epidemiologic methods, including: descriptive analyses based on cross-sectional, serial cross-sectional, and period prevalence designs; retrospective cohort studies using difference-in-difference, interrupted time-series, comparative interrupted time-series, and time-to-event designs; prospective cohort studies; qualitative assessments using grounded theory; and narrative and systematic reviews. A complete list of my publications is contained in my curriculum vitae (**Appendix B**).
8. In the first bellwether trial case in *In re: National Prescription Opiate Litigation* before Judge Dan Polster, I served as an expert witness on the nature of the opioid epidemic, both nationally and in the bellwether counties, and on evidence-based and evidence-informed approaches to abate the epidemic.

CONFIDENTIAL

I provided an expert report and was deposed in that case. I have also served as an expert witness in *State of Washington v. Purdue Pharma*, where I offered an opinion on the nature of the epidemic in Washington, and crafted an evidence-based and evidence-informed abatement plan to effectively address the epidemic there.

9. I received a B.A. cum laude from the University of Pennsylvania (Philosophy) in 1993, an M.D. from Case Western Reserve University in 1998, and an M.S. from the University of Chicago in 2003. A more complete description of my qualifications is found in my curriculum vitae. I performed this work through Monument Analytics, a health care consultancy that I cofounded that is separate and distinct from Johns Hopkins, and I was assisted during this process by Monument Analytics' employees and consultants. My rate of compensation for this matter is \$900 per hour. I am also reimbursed for my out-of-pocket expenses. I am not compensated based on the outcome of this matter nor the substance of my report.
10. The opinions and conclusions in this report are based on the information and documentation that was available to me at this time, and they are my own, rather than those of Johns Hopkins University. I reserve the right to supplement and revise these perspectives based on additional evidence or information that is made available to me after the date of this report.

## II. DATA SOURCES, METHODOLOGY AND OPINIONS

11. In preparing this report, I reviewed materials from a number of sources, including: Bates-stamped documents and deposition testimony in this case provided to me by counsel; published reports regarding the epidemic; information derived from other local and national; and peer-reviewed literature, whitepapers, reports from public health authorities, non-profit organizations, and other publicly available sources. I, along with some of my team members, have also spoken with many local stakeholders:

- David Chaffin, MD, FACOG, Professor, Marshall University
- Ray Cornwell, Police Captain, Huntington Police Department
- Todd Davies, PhD, Assistant Professor, Marshall University; Cabell-Huntington Coalition for the Homeless, Executive Director
- Hank Dial, Police Chief, Huntington Police Department
- Zach Hansen, MD, Doctor, Valley Health
- Tim Hardesty, Assistant Superintendent, Division of District Support and Employee Relations, Cabell County Schools
- Rocky Johnson, Police Captain, Special Investigations Bureau (Former), Huntington Police Department
- Michael Kilkenny, MD, Director, Cabell County Department of Public Health
- Marcia Knight, Director of Education, Cabell County EMS
- Sean Loudin, MD, Associate Professor, Marshall University School of Medicine
- Gordon Merry, Director, Cabell County EMS
- Steve Murray, Assistant Director, Cabell County EMS
- Lyn O'Connell, PhD, Associate Director of Addiction Sciences, Marshall Health
- Stephen Petrany, MD, Chair of Family & Community Health, Marshall University School of Medicine
- Jan Rader, Fire Chief, Huntington Fire Department
- Keith Thomas, Coordinator of Student Support, Cabell County Schools
- Ellen A. Thompson, MD, Professor, Marshall Health
- Kelly Watts, Assistant Superintendent, Division of Instruction and Leadership, Cabell County Schools
- Beth Welsh, Associate Director of Operations for Addiction Sciences in Family Medicine, Marshall University
- Steve Williams, Mayor, City of Huntington
- Chuck Zerkle, Sheriff, Cabell County Sheriff's Office

Many of my findings are based on prior investigations that my team and I have either performed or synthesized, such as knowledge contained in **Appendix A** and in citations such as references #1-#48. A complete list of the documents I consulted in preparing this report is provided as **Appendix C**.

12. Several prior reports, such as the West Virginia 2020-2022 Substance Use Response Plan,<sup>49</sup> City of Solutions Guide,<sup>50</sup> 2015 and 2017 Mayor's Strategic Plans,<sup>51,52</sup> and key components of the Cabell County Resiliency Plan<sup>53</sup> are relevant to my report given their authorship and focus. The Cabell County Resiliency Plan is especially germane given its comprehensiveness, recency and local applicability. It sets forth evidence-based interventions that are consistent with those proposed herein as well as those that have been proposed in other local plans and plans nationwide. My goal was not to recreate or replace the Cabell County Resiliency Plan or other proposals, but rather, to complement them with

## CONFIDENTIAL

additional analysis that includes: (a) a more detailed examination of the scientific evidence-base underlying varied abatement interventions; (b) estimates of the size of specific populations in need, such as the number of individuals within the Community that have HIV attributable to opioid use; (c) additional interventions that complement local plans, such as academic detailing, a specialized overdose law enforcement unit and community-wide naloxone “lock boxes”. The population estimates presented in my Redress Model, enclosed as **Appendix D**, are derived from data from local government entities (e.g., Cabell Huntington Health Department, Cabell County Emergency Medical Services), federal agencies (e.g., Centers for Disease Control and Prevention [CDC], Substance Abuse and Mental Health Services Administration [SAMHSA], Department of Justice), community-based organizations (e.g., Harm Reduction Coalition), peer-reviewed publications, and both my and others’ expert opinions. The selection of each estimate was driven by the strength of evidence and appropriateness of the data for the specific context at hand. I discuss my approach to evaluating evidence further in Paragraphs #14 and #15. Overall, I took a conservative approach to derive the population estimates included in my Redress Model.

13. The layout of my Redress Model mirrors the layout of this report. For each abatement intervention, I list the estimated size of the target population, how it was derived and the sources that I used. For example, I used data from the U.S. Fire Administration, Cabell County Emergency Medical Services, and local police and Sheriff’s departments to estimate the number of first responders (firefighters, emergency medical technicians [EMTs] and paramedics, and police officers) in the Community that should be provided with naloxone and training regarding its use. For each abatement category, I first estimate the size of each relevant population for 2021 and then I project how these populations are likely to change over a fifteen-year period from 2021 through 2035. For example, I project changes in the number of first responders using annual employment growth rates based on data from the U.S. Department of Labor, Employment & Training Administration (West Virginia O-NET data). More information regarding the sizes of different populations, as well as the methods that I used to project them over time, is provided within the Redress Model.
14. My review of the scientific evidence base was based on a stepwise process building on the foundation of literature regarding the opioid epidemic that I was already aware of. To supplement my knowledge, I reviewed the content of additional academic and governmental studies, including both their reference lists as well as subsequent reports that have cited them. I also reviewed reports such as those discussed in Paragraph #12 for additional sources of scientific information. Finally, in some instances, additional candidate articles were identified based on keyword searches of major bibliographic databases such as PubMed. In evaluating studies, I used a number of qualitative criteria that are often useful in evaluating the strength of scientific evidence supporting a given scientific finding or claim. These include factors such as the publishing journal, authorship team, affiliated institutions, funding source(s), data source(s), methodologic approach, and interpretation.<sup>c</sup> The “Hill Criteria” (strength of association, consistency, specificity, temporality, biological gradient, plausibility, coherence, experiment, and analogy) are also an important means of evaluating the strength of causal inference possible from a given scientific study, and I have applied this criteria as well.<sup>54</sup>
15. For some remedies to abate the Community’s opioid epidemic, such as OUD treatment or naloxone distribution and training, the evidence-base is vast, with thousands of peer-reviewed manuscripts examining this matter. In these settings, formal evidence syntheses were often available, typically

---

<sup>c</sup> Neither these criteria nor the Hill Criteria are absolute. Rather, they serve as contextual factors that provide qualitative information that can be useful in examining the credibility of scientific claims.



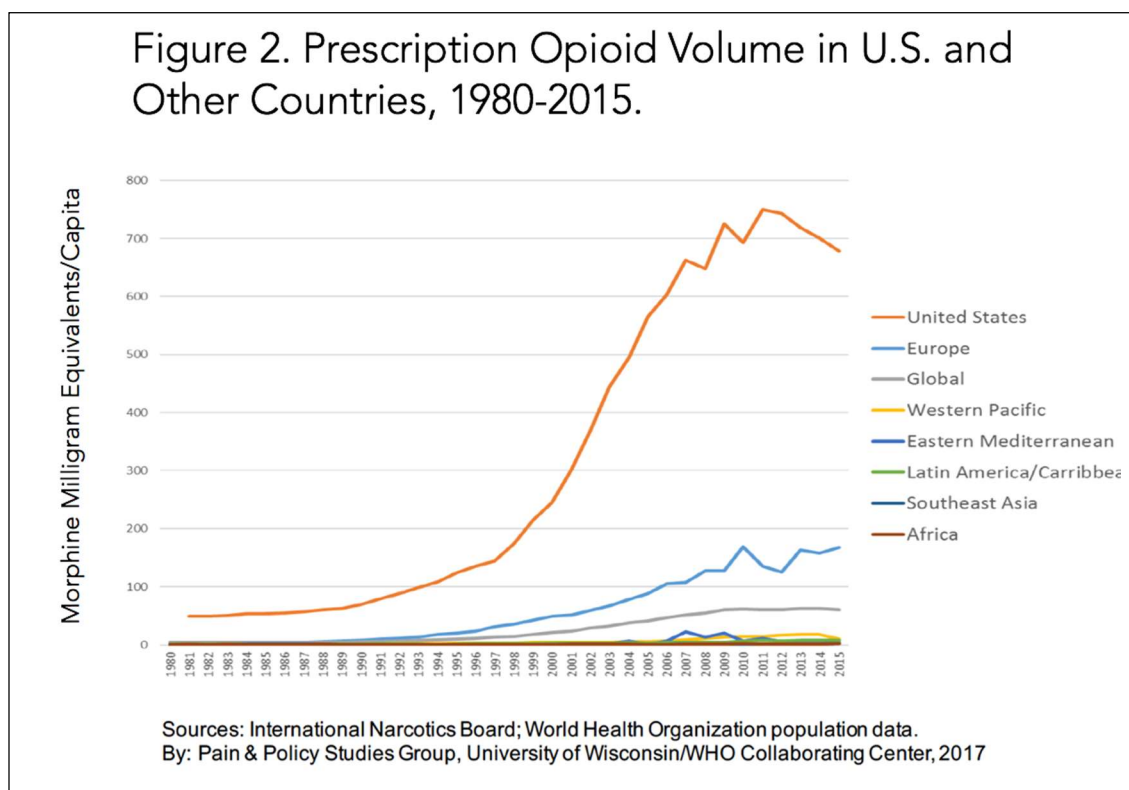
## CONFIDENTIAL

systematic reviews that represent a pre-specified, transparent, reproducible, highly structured approach to curating and critically appraising the totality of information required to address a carefully specified question. Because of their comprehensiveness and rigor, such evidence-syntheses are often regarded as at the top of the “evidence pyramid”.<sup>55</sup> For some abatement interventions, I also used information available from authoritative sources such as the CDC, National Institute on Drug Abuse (NIDA), or SAMHSA.

16. There is widespread consensus in both clinical and public health communities that the abatement measures identified in this report are effective in reversing opioid-related morbidity and mortality. The measures discussed herein are consistent with the Resiliency Plan, the Mayor’s Office plans, and the State’s Opioid and Substance Response Plans, and have been put forth by numerous consensus panels, task forces, professional society organizations and others. Disagreement about these solutions, when present, has tended to focus more on the priority of the interventions given limited funding (e.g., how much should be spent on law enforcement vs. MOUD,<sup>56</sup> as well as in some cases, the potential unintended effects of some interventions. Fortunately, there is a large evidence base to guide the selection of interventions that should be undertaken in the Community, and also a recognition of the critical point, as expressed by former Congressman John Delaney, “that the cost of doing nothing is not nothing”.<sup>57</sup>
17. I conclude that an opioid epidemic currently exists within the Community. This epidemic continues to result in high levels of opioid-related morbidity and mortality as described in this report and in materials that I have reviewed to prepare it. I further conclude, based on my experience in epidemiology, clinical medicine, and public health, my extensive application of these fields to the opioid epidemic and my analysis in this case, including review of the Resiliency Plan and other Community materials, that I am able to determine what additional evidence-based and evidence-informed measures and approaches should be used to reduce opioid-related harms. These measures and approaches are described below. The specific utilization and combination of measures should be subject to the opinions of stakeholders, policy-makers, and subject matter experts in the Community.
18. Based on the sweeping scientific support for the abatement interventions I have proposed herein, many of which have already been implemented in the Cabell-Huntington Community, I believe that coordinated, all-encompassing efforts that respond to the evolving epidemic could reduce cumulative opioid overdoses and opioid-related harms by 50% over fifteen years.<sup>58</sup> These findings, in addition to the research I have conducted throughout my career, have informed the timeline for my Redress Model. In addition, as I discuss later, interventions such as MOUD, naloxone distribution, and harm reduction programs don’t just make good public health sense, they also make good economic sense with positive returns on investment (Paragraph #227).
19. The next sections of my report discuss indicia of the opioid epidemic in the United States as well as the Community. After that, I discuss principles that should govern an effective response, misconceptions that must be addressed, and the importance of customizing abatement efforts to the needs of the Community’s unique Appalachian cultural and heritage.

### III. INDICIA OF OPIOID CRISIS AND ABATEMENT EFFORTS IN THE CABELL-HUNTINGTON COMMUNITY

20. Between 1992 and 2010, the volume of opioids prescribed in the U.S. increased by approximately 400 percent.<sup>59</sup> Rates of addiction, overdose deaths, and many other opioid-related harms increased in parallel.<sup>60</sup> Between 1999 and 2018, nearly 450,000 individuals in the U.S. died from a opioid overdose.<sup>61</sup> In 2017 alone, an estimated 47,600 people died in the U.S. from opioids, more than from motor vehicle accidents, suicide, gun violence, or AIDS at the peak of that epidemic.<sup>62</sup> For each year between 2015 and 2017, life expectancy in the U.S. declined, fueled in part by the opioids epidemic.<sup>63</sup> The origins of the present-day national opioid epidemic are described further in the expert report of Dr. Daniel Ciccarone. Despite modest declines in opioid use since 2010, they remain vastly overused, both relative to pre-epidemic baseline as well as to other parts of the world (**Figure 2**). This overuse is a key driver of ongoing injuries and deaths from the epidemic.



21. The devastation from the opioid epidemic, which has been closely linked to prescription opioid oversupply, is especially severe in the Cabell-Huntington Community, which has been referred to as the “overdose capital of the world”.<sup>64,65</sup> At the peak of opioid prescribing, in 2012, the opioid prescribing rate in Cabell County was twice the overall rate in the U.S. (167.5 vs 81.3 per 100 residents, respectively).<sup>66,67</sup> In 2015, 40 *million* opioid prescriptions entered Cabell County, enough for more than 400 pills for every adult and child in the County.<sup>68</sup> Despite significant reduction in the opioid prescribing rate, the 2018 opioid prescribing rate in Cabell County remains nearly two-times higher than the overall rate in the U.S. (92.1 vs 51.4 per 100 residents, respectively).<sup>69</sup>
22. This oversupply of opioids has contributed to a “synergistic epidemic”, or syndemic – the worst type of opioid epidemic – due to the high rates of mortality across multiple opioid classes and linked health problems that result in excess burden in the population.<sup>70</sup> Between 2001 and 2016, the number of

## CONFIDENTIAL

individuals in West Virginia that have died from an overdose increased four-fold.<sup>71</sup> At least 83% of these overdoses were caused by an opioid overdose.<sup>72</sup> Though the sharp rise in opioid deaths in West Virginia has largely been driven by heroin and fentanyl since 2014, between 2014 and 2016, deaths due to prescription opioids increased by 42%.<sup>73</sup> Within a six-hour time window on August 15, 2016, twenty-six people overdosed on opioids in Huntington.<sup>74</sup> In 2017, emergency services in Cabell County responded to, on average, over five overdoses a day;<sup>75</sup> 152 of these overdoses were fatal.<sup>76</sup> In 2019, there were 754 overdose-related visits to the two emergency departments (ED) in Cabell County.<sup>77</sup> For every life that has been lost, countless others have been affected by OUD or other collateral harms, further decimating this close-knit Appalachian community.

23. During the past decade, the opioid epidemic in the Community has been further complicated by an abrupt rise in heroin-related overdoses and overdoses from synthetic opioids such as illicitly manufactured fentanyl.<sup>d</sup> There is a clear link between non-medical use of prescription opioids and subsequent heroin or illicit fentanyl use – for example, heroin and fentanyl are close chemical analogues to prescription opioids.<sup>78</sup> In addition, several studies suggesting that 70-80% of current heroin users report non-medical prescription opioid use prior to initiating heroin.<sup>79,80</sup> An investigation conducted in Cabell County between June and July 2018 estimated that 1,857 residents inject drugs, amounting to one in forty (2.4%) adults in the Community.<sup>81</sup> Of those surveyed, more than three in five (63.5%) used prescription pain medications and 21.7% injected prescription pain medication; four in five (82%) injected heroin and over half (51.7%) injected fentanyl. Between 2012 and 2017, overdose deaths due to fentanyl increased over 20% in West Virginia.<sup>82</sup>
24. The incidence of neonatal abstinence syndrome (NAS) is also markedly elevated, with rates ten-times higher in Cabell County than the rest of the U.S.<sup>83</sup> Between 2007 and 2013, the incidence of NAS quadrupled in West Virginia, from 7.74 to 31.56 per 1,000 live births.<sup>84</sup> In 2017, there were 62.3 NAS cases per 1,000 births in Cabell County.<sup>85</sup> Nearly one-in-five (17.6%) of umbilical cords tested positive for opioids at Cabell Huntington Hospital.<sup>86</sup> West Virginia babies born with NAS during this time were 2.5-times more likely to have respiratory diagnoses, 3.7-times more likely to have feeding difficulties, and 7.5-times more likely to have seizures. From October 2016 to December 2017, it is estimated that around one in ten births (10.5%) in West Virginia were babies diagnosed with NAS. Within the substate region that contains Cabell County, around 670 infants were diagnosed with NAS.<sup>87</sup> The West Virginia Department of Health and Human Resources estimates that one in seven (14.3%) babies born in the state may experience long-term consequences resulting from drug exposure during pregnancy.<sup>88</sup>
25. In addition to the high number of infants born with NAS, the opioid epidemic has led to an increase of children being placed in foster care. Between 2009 and 2018, the number of children in foster care in West Virginia increased from 4,237 to 7,138.<sup>89</sup> In 2016, nearly one in five (16%) of the foster care placements in West Virginia were infants and half (47%) were due to parental substance use.<sup>90</sup> Youth in the Community are adversely affected by substance use in their families, peer groups and broader community. In 2016, 4% of middle and high school students in Cabell County reported the use of prescription drugs in the past 30 days.<sup>91</sup> Our own work suggests an increased risk of opioid initiation among household members of those prescribed opioids<sup>92</sup> – including an increased risk of opioid

---

<sup>d</sup> More recently still, the increasing presence of synthetic opioids in illicit drugs such as cocaine and methamphetamine, as well as rising stimulant-related deaths, has raised new concerns. Polysubstance use is common among individuals with OUD. While a comprehensive review of other use disorders (e.g., tobacco, alcohol, stimulants) is beyond the scope of this report, abatement approaches to reduce opioid-related harms must be informed by the presence of other use disorders among many with OUD.

## CONFIDENTIAL

overdose among adolescents and young adults.<sup>93</sup> Between January 2019 and March 2020, there were 122 overdose-related visits to Cabell County EDs for youth aged 19 years and younger.<sup>94</sup>

26. Harms from the opioid crisis have not gone unchecked, and despite a severe lack of resources, the Community has nevertheless mobilized in many ways to address the challenges head-on, including through increased prevention (e.g., take-back programs); harm reduction (e.g., syringe services, naloxone distribution and training); and treatment (e.g., MOUD). For example, one of the lessons from the August 2016 overdose crisis is the importance of reaching out to hospitalized individuals to link them with ambulatory OUD treatment.<sup>95</sup> Project Engage, which has been implemented in Cabell Huntington Hospital and St. Mary's Hospital, combines substance use disorder (SUD) screening in EDs and inpatient units with "warm handoffs" between clinicians and peer recovery specialists to link individuals to treatment. In 2018, the Provider Response Organization for Addiction Care Treatment (PROACT) opened to serve as a community-hub for SUD treatment and referral services.<sup>96</sup> PROACT bridges gaps in treatment by addressing the clinical, behavioral, and spiritual components of SUD. Additionally, PROACT expands medications for addiction treatment (MAT) capacity within Cabell by engaging multiple providers to serve in the clinic part-time, instead of employing one full-time physician.<sup>97</sup>
27. Similarly, concerns regarding the effect of OUD on pregnant women, new mothers and infants have led to remarkable transformation in the Community's systems of care to manage OUD among expectant mothers and their offspring. In addition to universal screening of pregnant women, babies with NAS are provided specialized care in the Neonatal Therapeutic Unit at Cabell Huntington Hospital and Lily's Place. MOUD is available to women through the Maternal Addiction Recovery Center (MARC) or Maternal Opioid Medical Support (MOMS),<sup>98</sup> while the Knowledge in Developmental Steps (KIDS) Clinic offers speech, language, feeding, and psychological or psychosocial services to children with NAS.<sup>99</sup> Though much is still unknown regarding the long-term trajectories of children with NAS, young children born with NAS have increased risk of socio-behavioral abnormalities<sup>100</sup> and poorer school performance<sup>101</sup> indicating that neurocognitive and physical effects may persist through adolescence and require expanded services into adulthood.<sup>102</sup>
28. Another important component of the Community's response to the epidemic has been the provision and expansion of harm reduction services. In 2015, the Cabell Huntington Health Department implemented the first Harm Reduction and Syringe Services Program (SSP) in West Virginia and has served as a model for Harm Reduction Programs throughout the region. The SSP has been effective at reaching and delivering services to residents. In 2016, the SSP served nearly 2,000 clients, distributed 300,049 syringes, and collected 232,067 syringes.<sup>103</sup> By September 2019, there were more syringes being turned into the program than given out.<sup>104</sup>
29. These and other responses reflect a high degree of collaboration between community organizations and other stakeholders,<sup>e</sup> and fortunately, there are glimmers of hope, with preliminary data suggesting a 22-26% decline in opioid-overdose deaths between 2017 and 2018 in Cabell County.<sup>105</sup> Additionally, the efforts of the Harm Reduction Program have coincided with reductions in the rate of new HIV infections linked to injection drug use, and without the program, the incidence of HIV diagnoses may have been over two-times higher than the current level.<sup>106</sup> However, for every glimmer of hope, there are other signs that the epidemic is as active as ever,<sup>107</sup> many barriers persist, programs are vastly under-

---

<sup>e</sup> Such stakeholders include the Cabell Huntington Health Department, Marshall University, Marshall Health, Cabell Huntington Hospital, Saint Mary's Medical Center, and the City of Huntington.

## CONFIDENTIAL

resourced and the Community remains hard pressed to address them while simultaneously addressing strong adverse environmental and social factors that continue to fuel the epidemic.<sup>108,109</sup> As but one example of the seriousness of the current challenges, Cabell County EMS reported that the number of overdoses they responded to in May 2020 were two to three times higher than the prior nine months.<sup>110,111</sup>

30. This is of particular concern because, as we<sup>112</sup> and others<sup>113,114</sup> have argued, the novel SARS-CoV-2 coronavirus (COVID-19) pandemic injects new urgency into efforts to address the opioid epidemic, given that it comes at a time when our country's response to the opioid epidemic was just starting to coalesce. One major concern is that the pandemic has disrupted care, including access to medications for addiction treatment, for many with OUD. Fortunately, SAMHSA,<sup>115</sup> the Drug Enforcement Administration,<sup>116</sup> and Centers for Medicare and Medicaid Services have responded by relaxing or clarifying rules and regulations so as to allow for greater provision of take-home methadone, remote prescription of controlled substances and reimbursement for telehealth services. Another is that many individuals with OUD have chronic comorbid conditions, as well as tobacco use, that place them at higher risk from critical illness or death should they become infected with COVID-19.<sup>117</sup> Yet a third major concern arises from the fact that addiction is "a disease of isolation". For an already marginalized group, the social distancing and other measures instituted in response to the global pandemic pose particularly profound risks. As we argue in our recent analysis, referring to response efforts underway to meet the needs of those impacted by the opioid epidemic, "These efforts will require new partnerships, unprecedented use of technology, and the dismantling of antiquated regulations. The greatest strength of the treatment system has always been compassion and care for the most vulnerable—qualities needed now more than ever."<sup>118</sup>

#### IV. PRINCIPLES GOVERNING EFFECTIVE RESPONSE

31. Despite the unprecedented injuries and deaths from the opioid epidemic, there is virtual consensus in the clinical, public health, and health policy communities that the epidemic can be abated. This consensus is reflected in the high concordance between a November 2017 report from the current Administration regarding the opioid epidemic,<sup>119</sup> a report that I Co-Edited and was released by the Johns Hopkins Bloomberg School of Public Health,<sup>120</sup> and other groups' recommendations to prevent further harms.<sup>121,122,123</sup> The Johns Hopkins report, enclosed as **Appendix A**, stemmed from three principles (**Figure 3**) that provide a valuable basis for current efforts.

Figure 3. Principles Governing Johns Hopkins Report: "The Opioid Epidemic: From Evidence to Impact".

- Informing Action with Evidence
- Scaling up evidence-based interventions; rapidly implementing and evaluating

32. In order to abate the epidemic, it is also important to eliminate common misconceptions about opioids and the ensuing epidemic, since inaccurate, misleading or false statements about the epidemic have allowed it to flourish. Examples of such misconceptions include:

Misconception #1: If a patient has "organic" pain, one need not worry about the addictive potential of opioids.

Reality: There is no evidence that organic pain prevents opioid addiction, and the notion that opioids are typically safe for chronic, non-cancer pain has contributed to their vast overuse.

Misconception #2: The primary driver of the epidemic is one of abuse, rather than addiction.

Reality: Abuse is a behavior and addiction is a disease; there are many lines of evidence demonstrating that addiction, rather than abuse, is the primary cause of opioid-related morbidity and mortality.

Misconception #3: The epidemic is largely driven by devious individuals such as rogue physicians and patients who are "doctor-shoppers".

Reality: Rogue physicians and "doctor-shoppers", while very important to identify and manage, account for a small proportion of opioid-related harms.

Misconception #4: If we constrain access to prescription opioids, it will just push people to heroin.

Reality: There are many factors that contribute to heroin use, and the potential for opioid policies "pushing" people to heroin underscores the need for significant treatment expansion in the United States.

**V. ABATEMENT FRAMEWORK**

33. There are three major categories of remedies that must be undertaken to address the opioid epidemic in the Cabell-Huntington Community.<sup>f,g</sup> First, we must improve the opioid prescription practices and the treatment of pain, since opioid oversupply has been a key driver of the epidemic.<sup>124,125</sup> Second, we must identify and treat individuals with OUD. This is important because even if prescription opioids were to be responsibly marketed, promoted, and used beginning tomorrow, there are still several thousand individuals in the Community with OUD, many of whom require active treatment and all of whom deserve access to care if and when treatment or recovery services are sought. Third, we must customize abatement remedies for specific subpopulations of the Community, including: pregnant women, new mothers, and infants; adolescents and young adults; families and children; the homeless and those with housing insecurity. We must also address the large number of individuals who may misuse opioids but who do not yet not fulfil formal criteria for OUD.
34. No *single* abatement remedy that is proposed can fully address the oversupply of opioids and associated morbidity and mortality in the Community; there are no magic bullets, and thus underscores the importance of intervening comprehensively as noted in the Cabell County Resiliency Plan. Also, some of the abatement remedies discussed may interact with one another in synergistic fashion, and successful implementation of some strategies may be dependent upon the simultaneous intervention of other strategies. For example, initiatives to decrease stigma and educate law enforcement and other community members about addiction may increase the demand for treatment, while expansions in treatment capacity to meet such demand may decrease rates of active OUD, which in turn may decrease overdose deaths and the need for naloxone. The dynamic nature of the epidemic, as well as the potential for these sorts of interactions, speaks to the vital need for surveillance and leadership as outlined in Section 1F. This will maximize the ability of communities to respond effectively to near real-time intelligence regarding key parameters of the epidemic and thus to use, and redirect, resources to maximize their public health value.
35. Some abatement approaches may be framed in the context of looking forward ten or fifteen years.<sup>h</sup> However, the legacy of the opioid epidemic will endure in the Cabell-Huntington Community far beyond that. This is because while OUD can be treated and may remit, it is not curable, and some individuals with OUD will require treatment indefinitely.<sup>126,127,128</sup> Others have acquired HIV and/or hepatitis C (HCV) as a result of an addiction that began with prescription opioids,<sup>129,130</sup> and they may require indefinite care for these comorbid conditions. Foster care for those orphaned by the epidemic, child welfare services, and services for children impacted by opioid use in utero must be resourced to address the needs of children and young adults as they grow and develop. Opioid use and its sequela also contribute to intergenerational trauma that propagates throughout time. For many, living healthy, productive lives in recovery is an active process, and thus to be successful, individuals must be supported with long-term resources to maximize their opportunities for success.

---

<sup>f</sup> Other interventions are important in addressing the epidemic yet beyond the scope of this report, such as changes to coverage and reimbursement policies so as to improve options for pain treatment and reduce financial barriers to OUD treatment.

<sup>g</sup> While there are other ways to classify potential remedies, the elements within these remedies are remarkably consistent across different abatement proposals put forth locally and nationally, reflecting the widespread consensus about what needs to be done.

<sup>h</sup> This medium-term view strikes a balance – it is long enough to support infrastructure development and several cycles of planning and evaluation while avoiding some of the uncertainty entailed in trying to anticipate the magnitude of sequelae from the epidemic that may last decades or even generations.

## CONFIDENTIAL

36. Here and throughout, while I suggest remedies that should be included as part of a comprehensive abatement plan, and while I consider programs that are already underway, I leave it to the Community<sup>i</sup> to determine the degree to which further investment should be undertaken.

For each of the categories below, in the following sections of my report I provide background and scientific context, components of the proposed abatement interventions corresponding to each category, and concluding thoughts. Population estimates for each category are provided in the Redress Model (**Appendix D**).

- Category 1: Prevention – Reducing Opioid Oversupply and Improving Safe Use
  - 1A. Health Professional Education
  - 1B. Patient and Public Education
  - 1C. Safe Storage and Drug Disposal
  - 1D. Community Prevention and Resiliency
  - 1E. Harm Reduction
  - 1F. Surveillance, Evaluation, and Leadership
- Category 2: Treatment – Supporting Individuals Affected by the Epidemic
  - 2A. Connecting Individuals to Care
  - 2B. Treating Opioid Use Disorder
  - 2C. Managing Complications Attributable to the Epidemic
  - 2D. Workforce Expansion and Resiliency
  - 2E. Distributing Naloxone and Providing Training
- Category 3: Recovery – Enhancing Public Safety and Reintegration
  - 3A. Public Safety
  - 3B. Criminal Justice System
  - 3C. Vocational Training and Job Placement
  - 3D. Reengineering the Workplace
  - 3E. Mental Health Counseling and Grief Support
- Category 4: Addressing Needs of Special Populations
  - 4A. Pregnant Women, New Mothers, and Infants
  - 4B. Adolescents and Young Adults
  - 4C. Families and Children
  - 4D. Homeless and Housing Insecure Individuals
  - 4E. Individuals with Opioid Misuse

---

<sup>i</sup> Stakeholders include, but are not limited to, public health and law enforcement; treatment providers and systems; behavioral health providers and systems; educators; community advocates; employers; payers; and the courts.



## CONFIDENTIAL

### CATEGORY 1: PREVENTION – REDUCING OPIOID OVERSUPPLY AND IMPROVING SAFE OPIOID USE

The goal of this category is to reduce the widespread oversupply of prescription opioids in the Cabell-Huntington Community so as to decrease injuries and deaths from these products.<sup>j</sup> This is important because the oversupply of prescription opioids during the past two decades has been an important driver of the opioid epidemic, both locally and nationally.<sup>k</sup> Harm from this oversupply arises from many points in the continuum of care, ranging from how clinicians treat pain to the diversion of opioids throughout the supply chain.

#### A. Health Professional Education

The goal of this remedy is to train health care providers, including prescribers and other health care personnel – including those employed by Cabell County and the City of Huntington – such as dispensers (pharmacists) and emergency medical technicians (EMTs), regarding the appropriate use of opioids in clinical practice, as well as how to identify and appropriately respond to patients who may have OUD. This is important because historically, many providers have overestimated the effectiveness of opioids and/or underestimated their risks. This has contributed to the oversupply of opioids, not only with respect to whether they are used at all, but also with respect to the dose and duration of use. In addition, OUD is often not recognized in clinical practice, and even when recognized, the delivery of treatment and recovery services often falls short.

37. One of the most systematic and well-studied approaches to direct training of prescribers, sometimes referred to as “academic detailing”, should be employed. Academic detailing is a method of evidence-based, interactive outreach to prescribers that uses trained personnel to make face-to-face visits with clinicians to promote optimal prescribing and improve the quality of patient care. Established in the 1980’s, there are dozens of studies that provide evidence of its value,<sup>131,132,133,134</sup> including a recent investigation indicating large decreases in opioid prescribing following a multi-level intervention that included academic detailing.<sup>135</sup> A systematic review of the impact of provider education, the most comprehensive assessment of its kind, concluded that this strategy results in significant improvements in prescribing quality,<sup>136</sup> and is consistent with a large literature overview examining the effectiveness of interventions to shape prescriber behavior.<sup>137</sup>
38. In addition to the numerous studies summarizing the evidence base for academic detailing outlined above, some studies also have examined the potential impact of such education on opioid-related measures. For example, a quality improvement study comparing a six-month pre-intervention baseline with a 16-month post-intervention period ending in April 2018 at a regional health system in Maryland documented a nearly 40% decrease in the overall opioid prescription rate, 60% decrease in the quantity of opioids prescribed per visit, and a reduction in the strength of opioids prescribed following a public and provider education campaign.<sup>138</sup> Patient satisfaction surrounding pain management in the ED also improved. Similarly, a multi-modal intervention between 2010 and 2015 using surveillance, academic detailing, and clinical decision support tools within Kaiser Permanente Southern California was associated with a 30% reduction of high-dose opioids, 98% reduction in large quantity (i.e., over 200 pill) opioid dispensing, and a 72% reduction of long-acting and extended-release opioids among 3.2 million adults in the Kaiser Permanente Southern California system.<sup>139</sup> Given that opioid prescribing

---

<sup>j</sup> This category excludes consideration of Drug Enforcement Agency (DEA) quotas, controlled substance scheduling and other mechanisms federal government may use to reduce supply of opioids or precursors in the marketplace.

<sup>k</sup> Reductions in opioid oversupply will also decrease opioid demand, since opioids are highly habit forming, tolerance quickly develops and a substantial minority of individuals receiving chronic opioids develop OUD.

## CONFIDENTIAL

rates in Cabell County remain two-times above the national rate,<sup>140</sup> interventions targeting prescribers may be especially valuable to reduce opioid oversupply in the Community.

39. Academic detailing has also been used to increase naloxone use.<sup>141,142</sup> For example, an analysis of Veterans Affairs (VA) facilities between 2014 and 2017 found that facilities that received academic detailing had a five-times higher rate of naloxone prescribing than their counterparts.<sup>143</sup> Of the estimated increase of 15,000 naloxone prescriptions among facilities receiving academic detailing, two thirds went to patients at a high risk of overdose due to the quantity or type of opioids prescribed. Another study, of 40 primary care providers in San Francisco, found that those receiving detailing had a ten-fold higher rate of prescribing naloxone than their counterparts;<sup>144</sup> physician participants reported that as a result of the educational outreach, they were able to open new conversations with patients to promote safer and more compassionate care.
40. Efforts to reduce the oversupply of opioids should be coupled with information regarding the principles of sound pain management, including through a focus on comprehensive assessments, multidisciplinary management, and functioning rather than pain levels per se. Opioids represent just one of a large number of pharmacologic and non-pharmacologic treatments that providers and patients may use for the treatment of pain. Alternative pharmacologic treatments include acetaminophen, non-steroidal anti-inflammatories (NSAIDs), antidepressants, anticonvulsants, and topical analgesics;<sup>145</sup> while non-pharmacologic treatments for pain include physical therapy, occupational therapy, chiropractic care, acupuncture, and psychological interventions.<sup>146</sup> In addition, the care of pain among those already engaged in opioid misuse or with OUD requires additional skill and training given the need for clinical management of both.
41. Training on the management of patients who have been maintained on chronic opioids is also important, especially the subset of patients on high-dose opioids (e.g., greater than 90 morphine milligram equivalents per day). Since patients using opioids chronically are physically dependent on them,<sup>1</sup> they must not have their opioids abruptly discontinued, nor should tapering be performed unilaterally. An increasing number of guidelines for tapering opioids among these individuals are available.<sup>147,148</sup> These guidelines include information on when tapering should be considered among patients on long-term opioid treatment, which often occurs when adverse effects or the risk of adverse effects (e.g., sedation, drowsiness, constipation, nausea) outweigh potential benefits with respect to reductions in pain and improvements in physical, psychological and/or social functioning.<sup>149</sup> The guidelines also speak to the optimal management of individuals who, based on taper failure, may fulfil criteria for persistent opioid dependence and who may be best managed through long-term opioid treatment, such as buprenorphine or methadone.
42. While there are many criteria that could be used to select physicians who should receive academic detailing, a conservative approach would be to focus on approximately 10% of all active, ambulatory patient-care prescribers – those that account for the highest prescribed opioid volume.<sup>m</sup> Because opioid prescribing is highly skewed, such a focus, properly designed, could reach prescribers accounting for the majority of opioids in the marketplace. For example, we previously found that fewer than 5% of prescribers in Florida accounted for approximately two fifths of opioid prescriptions and two thirds of

---

<sup>1</sup> Within a few weeks or less, all patients using opioids develop physical dependence, a predictable neurochemical change associated with sustained use. By contrast, addiction is far less predictable, represents compulsive use despite harm, and is often associated with impairment in social, psychological and/or physical functioning.

<sup>m</sup> While this discussion focuses on ambulatory care, an increasing number of evidence-based guidelines are also available for the post-surgical setting, where opioids have also been heavily oversupplied; an academic detailing program should also be considered for these prescribers as well.

## CONFIDENTIAL

opioid volume during a given calendar year.<sup>150</sup> Similarly, a study of workers compensation claims in California indicated that approximately 87% of opioid volume was accounted for by the top 10% of prescribers.<sup>151</sup>

43. Since academic detailing should target high volume prescribers in the Community, it must be based on information regarding specific individuals' prescribing behaviors. One source of such information would be West Virginia's Board of Pharmacy Controlled Substance Monitoring Program (CSMP), the Controlled Substance Automated Prescription Program (CSAPP).<sup>152</sup> An alternative source of similar data would be from a market intelligence firm, such as Symphony Health or IQVIA. These companies license data regarding prescription drug prescribing to pharmaceutical companies and other clients, and may represent a source of more efficiently gathered, possibly better curated and more timely information regarding both physician and non-physician prescribers (e.g., advanced nurse practitioners, physicians' assistants).<sup>153</sup>
44. The value of provider education lies in the quality of the information that is delivered. Thus, the information must be of the highest quality and from the most reputable sources. A natural foundation for this effort would be the 2016 Centers for Disease Control and Prevention (CDC) Guideline for Prescribing Opioids for Chronic Pain, given the credibility of the CDC, the extraordinary rigor that was exercised in its development, as well as the widespread endorsement that it has received.<sup>154</sup> This Guideline could be cross-referenced with other guidelines and sources used by established provider education programs already underway on opioids.<sup>155,156</sup> In addition to delivering information about best practices, academic detailing should also include reports so that individual prescribers or dispensing pharmacists can review and critically evaluate their prescribing or dispensing patterns relative to peers at local, regional, and national levels, as well as identify instances of prescribing or dispensing that may warrant closer and more critical evaluation.
45. Provider education has to deliver a limited number of focused messages or it will not be effective. The CDC Guideline for Prescribing Opioids for Chronic Pain<sup>n</sup> includes twelve scientifically supported "clinical reminders" that can be used as a basis for provider education modules:
  - 1) Opioids are not first-line or routine therapy for chronic pain;
  - 2) Establish and measure goals for pain and function;
  - 3) Discuss benefits and risks, as well as the availability of non-opioid therapies with patients;
  - 4) Use immediate-release opioids when starting opioid therapy;
  - 5) Start with the lowest effective dosage and use caution when titrating the dose (avoid increasing dosages by  $\geq 90$  morphine milligram equivalents/day);
  - 6) When treating acute pain, prescribe quantities no greater than what is needed for the expected duration of pain that is severe enough to warrant opioids (often no more than 3 days);
  - 7) Follow-up and re-evaluate risks and benefits with patients as they continue opioid therapy, and should the harms of continued opioid therapy outweigh the benefits, taper to a lower dosage or taper and discontinue opioid therapy;
  - 8) Evaluate risk factors for opioid-related harms and incorporate risk mitigation strategies into treatment regimens;
  - 9) Utilize West Virginia's CSMP data to determine whether a patient is receiving other therapies that put them at risk;

---

<sup>n</sup> While the 2016 CDC Guideline is one of the most comprehensive, authoritative and widely cited opioid guidelines, any academic detailing program as part of an abatement remedy should be based on an assessment of the most current and suitable sources of information for such a program.

## CONFIDENTIAL

- 10) Urine drug testing should be utilized to assess for the presence of other medications and illicit substances;
  - 11) Avoid concurrent benzodiazepine and opioid treatment; and
  - 12) Arrange treatment for patients with opioid use disorders.<sup>157</sup>
46. The 2016 CDC Guideline improves upon clinical guidelines that emerged from the liberalization period in the 1990s in several important ways. For example, in 1997, the American Academy of Pain Medicine and the American Pain Society issued a consensus statement that endorsed the use of opioids to treat chronic, non-cancer pain, arguing that “studies indicate that the de novo development of addiction when opioids are used for the relief of pain is low.”<sup>158</sup> By contrast, the 2016 CDC Guideline underscores the risks of addiction and other adverse events related to prescription opioids, recommends lower dosages, focuses on improving safe use among all, rather than “high-risk”, patients, and provides more specific guidance regarding how to best monitor opioid use and establish thresholds for stopping them in the setting of unfavorable risks/benefit balance.<sup>159</sup>
47. The National Resource Center for Academic Detailing (NaRCAD), a center aimed to support clinical outreach education programs, provides an extensive directory of established provider education programs, including a section for those dedicated to opioid safety.<sup>160</sup> For example, Alosa Health is a non-profit that has deep experience in this area conducting state- and nationwide campaigns, including a recent academic detailing project in pain treatment education in West Virginia.<sup>161,162</sup> While pharmaceutical companies and PBMs both have extensive workforces available for direct prescriber outreach, neither would be credible in this setting given the conflicts of interest that would be posed. Instead, provider education programs typically recruit physicians, nurses, pharmacists or other individuals with a background in related health disciplines to conduct outreach.
48. Regardless of the detailer’s background, it is essential that educators have no potential commercial conflicts of interest, have a background in a health discipline such as medicine or pharmacy, and receive rigorous training on how to conduct this outreach. Lack of clinical knowledge may cripple the detailer’s credibility with the prescriber, making it difficult to establish a strong relationship that promotes rational prescribing. Furthermore, it is also important that the outreach is repeated over time, with follow-up visits to encourage positive changes and reinforce key messages.
49. In addition to academic detailing of prescribers, broader health professional education should also be considered for at least four types of health care providers in the Community:
- Licensed prescribers (beyond those selected for academic detailing based on high opioid prescribing), such as physicians, dentists, nurse practitioners, and physicians’ assistants, are important to target because they issue prescriptions for opioids and other analgesics.
  - Nurses, especially in settings such as EDs, urgent care, and other settings where opioids are commonly used, should be targeted because they are in an influential position to shape the culture of pain management and to raise awareness about evidence-based methods to identify and treat pain and OUD.
  - Dispensers, or pharmacists, should be targeted because they dispense opioids and are increasingly responsible for implementing drug utilization management policies and practices designed by payers and pharmacy benefits managers (PBMs).
  - Emergency medical technicians (EMTs) are important to reach because they are often the first point of contact with individuals who have overdosed, and thus in a key position to bridge a common treatment gap that contributes to low rates of evidence-based treatment for OUD, namely, individuals who are resuscitated but not connected with OUD treatment.

50. Resources permitting, education of other health care personnel, such as pharmacy technicians and physical therapists, should also be undertaken. Since opioid oversupply, as well as OUD, are both so common, these personnel also regularly engage with patients who have a high likelihood of being harmed by the epidemic, and thus they too are in a position to support a required cultural shift in the paradigm of pain and OUD identification and management in the U.S.
51. In addition, while training and professional development of health care personnel such as doctors, nurses and EMTs is vital, additional educational capacity-building, as well as technical assistance, must be employed if the opioid epidemic is to be successfully addressed in the Cabell-Huntington Community. For example, hospitals, health systems, integrated delivery networks, physician practices, long-term care facilities, and other health care institutions and organizations should work diligently to incorporate educational programming and professional development services that assist in raising awareness and disseminating knowledge regarding the drivers of the opioid epidemic, as well as the role of their respective institutions in addressing it. In some instances, such programming may be delivered through Continuing Medical Education (CME), Continuing Nursing Education (CNE), or similar vehicles, although it is important that any such programming be scrupulously developed and monitored to minimize the potential for bias that might jeopardize the quality and impact of such materials.<sup>163</sup> Health systems play an especially important role given their broad reach and ability to promulgate evidence-based guidelines, as well as to engage in opioid stewardship.<sup>164</sup> Technical assistance to the courts, law enforcement, substance use treatment providers, and other stakeholders should also be provided so as to ensure that these entities are kept abreast of the changing contours of the epidemic and the most relevant advances in prevention, treatment, and recovery.
52. Components of abatement interventions. As reflected in the Redress Model, the top prescribers (physicians, dentists, nurse practitioners, and physician assistants) in Cabell County, as defined by prescribed opioid volume should be the focus of a comprehensive academic detailing program. In each given year, prescribers who meet the inclusion criteria for being a top prescriber should be visited multiple times (minimum of four visits) by preferably the same academic detailer. In addition to well-trained academic detailers, an effective academic detailing program should include experts who continuously develop and modify the detailing approach so as to be responsive to the clinicians they are visiting as well as to reflect the dynamic nature of the epidemic, advances in pain management and current clinical guidelines. Educational programming should also be aligned and coordinated with other types of provider outreach taking place within the Community, such as the health professional education regarding OUD identification and treatment through Project Engage<sup>165</sup> or the Marshall University Grand Rounds that focus on pain management and OUD treatment.<sup>166</sup> The program will also require administrative staff who will facilitate tasks such as scheduling and communication, travel itinerary, production/printing of modules, and other tasks. Moreover, CME and CNE programs should be provided to all prescribers in the Community annually, building on the courses already offered by West Virginia Board of Medicine.<sup>167</sup> Additional programs should also be developed to address the educational and training needs of non-prescribers such as licensed practical nurses, pharmacists, and paramedics, although I have not included these quantitative estimates in my Redress Model.
53. In conclusion, abatement programs within the Community should include health professional education. Efforts such as academic detailing are feasible and can be highly scaled as well; numerous state-wide and even national provider education programs promoting safe prescribing have been conducted during the past two decades, including across Pennsylvania (e.g., Department of Aging Pharmaceutical Assistance Contract for the Elderly [PACE] Academic Detailing Program),<sup>168</sup>

## CONFIDENTIAL

Massachusetts (e.g., Boston Medical Center's Transforming Opioid Prescribing in Primary Care),<sup>169</sup> and the United States Department of Veterans Affairs (e.g., National Academic Detailing Service).<sup>170</sup> Many health systems, including large integrated delivery networks such as Kaiser Permanente,<sup>171</sup> have also executed such programs. Careful review of the evidence indicates that academic detailing works and would be an effective abatement tool for the Community,<sup>172</sup> and it should be combined with broader health professional education as discussed above.

## **B. Patient and Public Education**

The goal of this remedy is to raise awareness and activate patients and the general public in the Community regarding the risks of opioids as well as the prevalence and treatability of OUD. Patient and public education can help to address the fact that many people do not understand the risks of opioids or that OUD is a treatable brain disease. It can also chip away at stigma, which serves as a profound barrier to treatment.

54. Patient education is an important method of improving the safe use, storage, and disposal of opioids, since there are important shortcomings in patients' knowledge regarding these matters. For example, the 2016 CDC Guideline highlights the importance of clinicians discussing with patients the known risks and realistic benefits of opioid therapy before initiating treatment.<sup>173</sup> Other professional societies and organizations, such as the Veterans Administration/Department of Defense Clinical Practice Guideline for Opioid Therapy for Chronic Pain, also emphasize the importance of patient education as part of a multi-faceted strategy to maximize the risk/benefit value of opioids in clinical practice.<sup>174</sup>
55. In contrast to public education, which is addressed below, clinicians play an especially important role in educational outreach targeting patients who may be using opioids or otherwise at risk for opioid-related adverse events. However, clinicians themselves must be equipped to conduct such education, and their preparation for this can be maximized through academic detailing or other educational outreach as previously described. The West Virginia Hospital Association has developed guidance for the use and prescribing of opioids in EDs.<sup>175</sup> Marshall University has also developed a "Prescription Opioid and Heroin Awareness Toolkit", which provides information on the burden of the opioid epidemic and ways to prevent non-medical opioid use.<sup>176</sup> Additional educational materials have been developed by the CDC to promote safer opioid use and minimizing the risk of overdose;<sup>177</sup> SAMHSA's Opioid Overdose Prevention Toolkit includes a module providing safety advice for patients and family members;<sup>178</sup> and other organizations, such as the American College of Surgeons,<sup>179</sup> have developed their own messaging that can be used to educate patients regarding different aspects of the opioid epidemic.
56. Public education is also a crucial component in abating the epidemic, and one important way to conduct such education is through mass media campaigns. When properly designed and branded, such campaigns can deliver "sticky" messages, that is, messages that are concrete, memorable, contagious and therefore, impactful.<sup>180</sup> Such messaging can serve as part of an effective intervention to positively change health behavior.<sup>181,182</sup> Despite this, not all mass media campaigns have been successful in achieving their desired impact,<sup>183</sup> and their success is dependent on several factors including the level and duration of investment made, the planning that goes into the campaign, and the availability of concurrent treatment and other services. A mass media campaign may include a variety of media, including television, radio, billboards, and social media. Though there is limited literature on mass media campaigns focusing on opioids, there is robust information from campaigns on alcohol, tobacco, and other illicit substances.
57. A number of these campaigns can be used as models when designing campaigns to address the opioid epidemic. For example, Idaho's Meth Project was aimed at reducing methamphetamine use through a comprehensive approach of public service announcements, community outreach, public policy approaches, and in-school lessons. Following the campaign's initiation in 2007, Idaho experienced a 56% decline in meth use amongst teens.<sup>184</sup> The U.S. Food and Drug Administration's (FDA) award-winning youth tobacco prevention campaign, "The Real Costs", is another example of a relatively recent mass media campaign. This campaign was launched nationally on multiple platforms, including TV, radio, print, and social media. The campaign was focused on reaching youths, 12 to 17 years old

## CONFIDENTIAL

in the U.S., who were open to trying smoking or were already experimenting with smoking. In 2014-2016, high exposure to the campaign was associated with a 30% decrease in the risk of smoking initiation amongst youths.<sup>185</sup>

58. Several mass media campaigns addressing the opioid epidemic have been conducted nationwide,<sup>186,187</sup> and early findings suggest their potential utility. For example, in January 2017, then New Jersey Governor Chris Christie rolled out the ReachNJ initiative aimed at raising awareness about the availability of new addiction treatment services in New Jersey.<sup>188</sup> The initiative included television ads airing on New Jersey, New York, and Philadelphia television stations. As of January 2018, more than 18,600 people had called the ReachNJ hotline, with the frequency of calls at least three-times higher in April-June 2017, when television and radio ads were on air, compared to July-August, when only digital ads were used.<sup>189</sup> A second example, the 2017 CDC-funded program, used video advertisements, radio advertisements, digital materials, and print materials to increase awareness and knowledge about the risks of prescription opioids.<sup>190</sup> Piloted in Ohio, Oregon, Rhode Island, and West Virginia, over 70% of individuals exposed to campaign materials correctly identified the campaign's message of preventing misuse of prescription opioid pain medications and over 50% linked this to the goal of preventing overdose deaths. A third example was designed to raise awareness about a new law increasing naloxone access and providing legal protection for people who call 911 to report an overdose. This state-wide media campaign in North Carolina focuses on leveraging inexpensive platforms such as social media, printed flyers, public service announcements, and local media and was reported as effective in building connections with the local community and helping the organization become established as "the go-to expert for local media" regarding the epidemic.<sup>191</sup> Media campaigns by Help & Hope WV and Stigma Free WV are currently being tested in West Virginia to reduce stigma surrounding MOUD and increase awareness that addiction is a disease and can be treated.<sup>192</sup> Additionally, Healthy Connections – a coalition based in Cabell County – is seeking to reduce stigma by humanizing the epidemic through media campaigns and simultaneously investigating the most effective strategies for reaching individuals with SUD.<sup>193</sup>
59. Components of abatement interventions. A mass media campaign using platforms such as TV, radio, billboards, print, and social media should target all individuals aged 12 years and older who reside in the Cabell-Huntington Community, since they represent the population at risk. As per CDC guidelines, a minimum of 75% to 85% of the target population should be reached by the campaign.<sup>194</sup> The Redress Model reflects those recommendations in Section 1B. The mass media campaign should have a simple, effective message that has been developed by communication and content experts and that has been piloted and pretested using methods such as focus groups.
60. In conclusion, abatement programs within the Community should include investments in educational campaigns targeting patients and the general public. While the Community has begun multimedia campaigns to reduce stigma (i.e., Healthy Connections)<sup>195</sup> and educational campaigns around drug disposal and safe opioid use (i.e., "Wake Up" West Virginia),<sup>196</sup> greater resources are required to educate patients and the general public. Multimedia campaigns should include experts in health communications and public safety and be carefully designed to fully address widely prevalent yet insidious stigma that erodes effective community responses to the epidemic, treating addiction as a willful choice or moral failure, and cleaving off addiction and its treatment from other health care.<sup>197</sup> These campaigns must also educate the general public both about the risks of opioids as well as the prevalence of OUD and its responsiveness to treatment. In addition, they should include messaging around the safe storage and disposal of opioids, since many individuals receiving opioids do not report having received such information.<sup>198</sup>

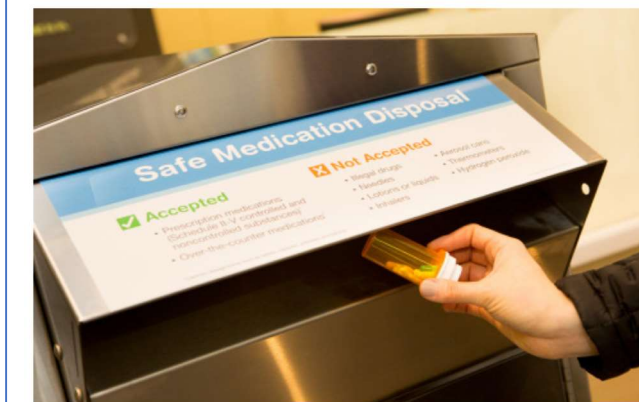


### C. Safe Storage and Drug Disposal Programs

This remedy respects the principle of intervening comprehensively along the prescription opioid supply chain, including addressing enormous stockpiles of opioids in homes within the Community, by providing individuals in the Community with convenient opportunities to safely store and discard unused medicines.

61. Safe storage and drug disposal guidelines are a critical component of public education, since the improper storage and disposal of unused prescription opioids is a widely recognized public health concern and an important component of the current opioid epidemic. In a 2017 systematic review that my colleagues and I published in *JAMA Surgery*, 67-92% of surgical patients reported having unused opioids after surgery, and in two studies examining storage safety, 73-77% of patients did not store their opioids in locked containers, resulting in a large reservoir of opioids which contributes to the misuse of these products.<sup>199</sup> Other studies also support the assertion that the safe storage and proper disposal of opioids is uncommon.<sup>200</sup> The failure to safely store and dispose of unused opioids extends beyond surgical settings and contributes to the diversion of opioids as well as their non-medical use.<sup>201</sup> For example, of the 11.4 million individuals in the U.S. reporting opioid misuse in 2017, more than four in five (83%) reported that they bought, were given, or stole opioids from individuals who were in turn prescribed these drugs by a licensed prescriber.<sup>202</sup>
62. Safe storage and drug disposal guidelines must be accompanied by increased availability of drug disposal programs, since these programs provide one avenue for proper disposal of unused opioids.<sup>203</sup> Some disposal programs are based on periodic events. For example, the U.S. Drug Enforcement Administration (DEA) hosts short-term events wherein temporary collection sites are set up for the safe disposal of unused prescription medicines. Held on September 25, 2010, the DEA conducted the first-ever national drug take-back day, collecting over 121 tons of medications at more than 4,000 sites nationwide.<sup>204</sup> The DEA's most recent National Take Back Day was October 26, 2019, representing the participation of 4,896 law enforcement personnel and 6,174 collection sites that collected a total of 441.5 tons of prescription drugs.<sup>205</sup>
63. On the National Take Back Day in October 2018, over 7,500 pounds of unused prescription medications were collected in West Virginia, including 40 pounds from the Huntington Police department alone.<sup>206</sup> Other disposal programs are based on permanent collection sites authorized by the DEA, such as within pharmacies or law enforcement facilities (**Figure 4, next page**). Two permanent collection sites in Cabell County are in the Huntington and Milton Police Departments.<sup>207</sup> Unless disposal programs are convenient, they are unlikely to be widely used, and the use of pharmacies as part of a "reverse logistics" program, where the standard distribution system is reversed to return unused or unwanted product, has many efficiencies.<sup>208</sup> Some authorized collection sites may also provide mail-back options to assist patients in disposing unused medicines, especially for homebound patients or others with special needs. Local pharmacies may also provide free deactivation packets, such as those provided by the Walmart Pharmacy in Huntington.<sup>209</sup>
64. Although patients may favorably perceive drug disposal programs,<sup>210</sup> historically, permanent collection sites have been uncommon due to administrative, legal, and economic barriers. As of 2017, the United States Government Accountability Office reported that only 2,233 of 89,550 eligible entities (2.5%), such as pharmacies, hospitals/clinics, narcotic treatment programs, reverse distributors, distributors, and manufacturers, were registered as authorized collectors of unused prescription drugs.<sup>211</sup>

Figure 4. Take-Back Receptacle in a Pharmacy.



65. Despite their importance, historically, drug disposal programs have only re-collected a small proportion of the total number of controlled substances dispensed, with collected drugs also including a mix of other medications such as antibiotics, oral contraceptives, and cardiovascular treatments.<sup>212</sup> Furthermore, the U.S. FDA directs that certain prescription medicines, such as opioids, should be immediately flushed down the toilet when no drug disposal program option is readily accessible.<sup>213</sup> Patient and pharmacist education regarding how to properly dispose of opioids is important. In the absence of drug disposal programs, other routes of disposal include mixing unused opioids with inedible garbage (e.g., cat litter) or using specialized chemicals that trap the unused pills in a non-divertible and biodegradable matrix.<sup>214</sup>
66. Components of abatement interventions. Existing efforts through the Huntington and Milton Police Departments should be supported and promoted through varied means ranging from pharmacy posters or informational stickers on pill bottles to the promotion of drug disposal events to increasing the number of programs within pharmacies and health systems. Staffing needs will vary based on the magnitude of work involved. There are four major components to consider when establishing and maintaining a drug disposal program: (1) promotion; (2) staffing; (3) equipment and supplies; and (4) disposal.<sup>215,216</sup> Equipment, supplies, and frequency of disposal will depend upon the volume of drugs collected, which can be estimated based on the population of the Community (see Section 1C of the Redress Model). For context, prior studies of drug-take back initiatives based in pharmacies and police departments in rural counties report approximately 600 pounds of medications are collected a year.<sup>217,218</sup>
67. In conclusion, abatement programs within the Community should include investments to educate individuals regarding safe opioid storage, as well as to expand the availability and convenience of drug disposal programs. While periodic “take-back” days, such as those coordinated with the DEA, are impactful, such episodic programs should be complemented by accessible permanent collection sites that are continuously operated. In addition to placing take back kiosks within Police Departments, programs should be implemented throughout community pharmacies as well as urgent care centers, hospitals and health systems. For select populations, such as homebound elderly or others with special needs, it may also be helpful to invest in mail-back options and/or distribution of biodegradable technologies that allow for safe and convenient at-home disposal.

**D. Community Prevention and Resiliency**

The goal of community prevention and resiliency is to form coalitions that can identify needs and trends within communities, and to implement evidence-based, culturally-responsive interventions that reflect the values, capacities and expressed needs of local communities. These programs seek to strengthen social bonds and promote healthy behaviors. In doing so, these programs bolster the resiliency of a community. They are essential to reduce the likelihood that community residents will initiate opioids. Such efforts can also help to mitigate the clinical, social and economic impact of the opioid epidemic in the Appalachian community of Cabell County and the City of Huntington.

68. Prevention science. The field of prevention science has flourished in the past few decades. A growing body of scientific evidence demonstrates that problematic adolescent behaviors can be mitigated through prevention efforts. Intervention researchers have identified risk and protective factors. This, in turn, has allowed for the testing of rigorously-designed experimental evaluation of administratively feasible interventions in community settings.<sup>219,220,221</sup> While many such interventions have focused on violence or delinquency, others focus on SUDs and demonstrate enduring benefit.<sup>222,223</sup>
69. Community coalitions. Many approaches to primary prevention of SUD have been proposed, including in West Virginia. Some of the most promising are based on the use of community coalitions.<sup>224,225</sup> This provides one pragmatic and tested framework to identify community prevention needs, and to effectively implement durable, evidence-based interventions that command broad community support. Such efforts are designed to field durable, evidence-informed, and administratively feasible interventions that engage a diverse community coalition, and that effectively draw upon existing assets to meet the expressed needs of local communities.<sup>226</sup> Such an approach has already been used in West Virginia, including the Putnam County Wellness Coalition<sup>227</sup> and Kanawha Communities that Care.<sup>228</sup> The broader community includes many organizations that would be strong partners in such efforts, including United Way of the River Cities,<sup>229</sup> Guiding Good Choices,<sup>230</sup> Strengthening Families Program,<sup>231</sup> and Big Brothers Big Sisters of the Tri-State.<sup>232</sup> Local nonprofits and government organizations, including Cabell Huntington Health Department (CHHD) and Marshall University, are well-equipped to coordinate this effort in collaboration with outside researchers, community residents, and other stakeholders.
70. Communities That Care (CTC) is one prominent collaborative approach to developing and implementing effective programs to prevent or reduce substance use, delinquency, and other risk behaviors.<sup>233</sup> The CTC model provides a structure for engaging stakeholders and establishing a shared vision for the community. CTC provides tools to survey community members regarding pressing local needs and provides one well-studied process to pursue specific and measurable goals in partnership with experienced intervention researchers. Rather than being proscriptive, the CTC model provides local communities with a menu of evidence-based approaches, from which the coalitions can identify specific interventions and strategies in the formulation, and iterative evaluation, of a community action plan to address local needs.
71. CTC's effectiveness was tested in the Community Youth Development Survey (CYDS), a randomized control trial of 24 urban and rural communities in seven states (Washington, Illinois, Kansas, Colorado, Maine, Oregon, and Utah).<sup>234</sup> Outcomes by grade 12 were compared among youth who had received CTC interventions between fifth and ninth grade, and youth who resided in control communities. Youth within the CTC treatment group were significantly more likely to have refrained from any alcohol, tobacco, or other drug use, and were significantly less likely to have committed an act of delinquency.<sup>235,236,237,238,239,240,241</sup> At an average inflation-adjusted cost of roughly \$633 per youth, CTC

## CONFIDENTIAL

has demonstrated cost-effectiveness, returning an estimated \$5.30 for every dollar invested through returned by reduced crime and criminal justice costs and other benefits to local communities.<sup>242,243</sup>

72. Components of abatement interventions. A community resiliency coalition should build on the areas of need, identifying key stakeholders, evaluating and implementing evidence-based programs using a systematic and iterative process such as the CTC framework. There are five major components to consider when moving forward with a community prevention and resiliency plan: (1) staffing; (2) assembling pertinent stakeholder coalitions; (3) surveying community members to identify needs and assets; (4) formulating and implementing a community action plan; and (5) evaluating processes and outcomes associated with the community action plan. Staff devoted solely to the implementation and coordination of community prevention efforts will ensure efficiency and prevent duplication. These prevention programs should incorporate the data collected by a proposed Opioid Abatement Coordinating Unit (see Section 1F of the Redress Model) and respond to the current and future needs of the community. Furthermore, as reflected in the Redress Model, a brick-and-mortar space dedicated to community prevention efforts, including stakeholder meetings, youth activities and prevention programs, will mitigate logistical barriers to implementing evidence-based programs that promote community resiliency.
73. In conclusion, abatement efforts in Cabell County and the City of Huntington should encompass coalition building that focuses on promoting community resiliency. Programs that strengthen social bonds and promote health behaviors will help to heal the community-level trauma caused by the opioid epidemic. Frameworks such as CTC that incorporate measurable goals, are guided by local data and trends, and select evidence-based prevention programs have reduced substance use and reinforced social bonds within communities. These programs should be developed by and for the Community while leveraging its strong Appalachian cultural heritage.<sup>244</sup> A robust evidence base exists for the effectiveness and economic benefits of such efforts.

## CONFIDENTIAL

### E. Harm Reduction

The goal of harm reduction is to implement evidence-based interventions that “meet people where they are at,” as compared to zero-tolerance approaches that criminalize opioid use, propagate stigma, and serve as a barrier to accessing treatment. Such approaches recognize the formidable barriers that often prevent people from treatment seeking or achieving full recovery; harm reduction will decrease individual and societal harms from the opioid epidemic in the Community.

74. Harm reduction refers both to a set of general principles used to underpin policies concerning the way that societies respond to drug problems and to specific interventions. A defining feature of these approaches is their focus on harms associated with opioid use rather than the prevention of such use per se. Harm reduction approaches can target individuals as well as the structural (e.g., drug paraphernalia laws)<sup>245</sup> and environmental (e.g., physical environment) contexts which engender harm.
75. Harm reduction can be contrasted with approaches that prioritize the singular prevention of drug use, which often are embodied in “zero tolerance” enforcement approaches.<sup>246</sup> Empirical evidence has demonstrated short-comings of the U.S. “War on Drugs,”<sup>247,248</sup> including its failure to reduce the demand for drugs<sup>249,250</sup> or decrease drug-associated violence<sup>251</sup> while leading to the disproportionate incarceration of people of color and the urban poor. Such findings underscore the need for innovative, evidence-based approaches to address OUD and other harms stemming from non-medical opioid use. An important component of any comprehensive response to the opioid epidemic includes scaled-up harm reduction services targeting people who are actively using drugs. There are two main harm reduction approaches that are relevant to the opioid epidemic and discussed below, syringe services programs and drug checking services; naloxone is discussed separately in Section 2E of this report.
76. Syringe services programs (SSPs) are designed to provide clean syringe access and disposal to people who inject drugs (PWID). Such programs were scaled up in the U.S., Europe, and Australia in the 1990’s and 2000’s to help reduce the transmission of blood-borne infectious diseases as discussed in Section 2C below. The U.S. Public Health Service has long recommended to have a clean syringe for every injection, effectively increasing the “coverage” of sterile injection equipment.<sup>252</sup> Through extensive research over three decades, SSPs have been associated with reductions in risky syringe sharing behaviors,<sup>253,254,255</sup> as well as rates of HIV,<sup>256,257,258,259</sup> hepatitis B, and HCV.<sup>260</sup> A study by the National Institutes of Health found that syringe exchange programs are associated with a reduction in risk behaviors as high as 80% among injection drug users.<sup>261</sup> A systematic review of SSP studies, including many from the U.S., found that SSPs are associated with a 32% reduction in the transmission of HIV and approximately a 50% reduction in HCV incidence among PWID.<sup>262</sup>
77. The Cabell Huntington Health Department (CHHD) Harm Reduction Program – the first in the state of West Virginia – has implemented education of safer injecting practices and access to preventative healthcare, such as HIV and HCV testing and vaccinations, in the Community. A 2017 white paper from the West Virginia Department of Health and Human Resources (WVDHHR) suggested that compared to new clients, returning SSP clients were 67% less likely to share needles, suggesting the adoption of safer injecting practices.<sup>263</sup> A more recent 2018 study of PWID in Cabell County found that 66% obtained sterile syringes from the SSP and over half accessed services from the CHHD Harm Reduction Program.<sup>264</sup> By providing a system and education on the safe disposal of syringes, there are fewer reports of needles being found in public, which is important for public health and safety. Notably, data also suggests that the syringe exchange program reduces the risk of unintentional needlestick injuries among Cabell County’s first responders.<sup>265</sup> As noted in Paragraph #28, the Community has been on the leading edge of using harm reduction as one means to reduce opioid-related harms.

78. Though the Harm Reduction Program in Cabell County has been critical in promoting public health in the Community, access and transportation to the program remains a barrier for many.<sup>266</sup> Given the rurality of much of the county and lack of public transportation, a mobile harm reduction program would significantly improve access. A review of twelve HIV Outreach programs which included harm reduction services found that clients who accessed mobile units were 86-times more likely to receive an HIV test than those who accessed other sites.<sup>267</sup> The authors noted that mobile outreach increased recognition and opportunities to initiate conversations with new clients and such outreach may increase the likelihood that an individual will enter treatment.
79. SSPs also save communities money in the long term by preventing disease transmission, reducing overdose and injury associated with drug use, and increasing the likelihood of linking individuals with substance use treatment.<sup>268,269</sup> This is because SSPs generally include onsite evaluation and referrals for SUD treatment for an otherwise difficult to access population. As of October 2017, there were an estimated 310 SSPs in 42 U.S. states and Washington, D.C.<sup>270</sup> Despite anecdotes to the contrary,<sup>271</sup> SSPs do not increase illegal drug use or crime. For example, analyses of such programs in New York City and Baltimore indicate no difference in crime rates between areas with and areas without SSPs, including trends in arrests and violent crimes.<sup>272,273</sup>
80. SSPs often provide medical services for PWID, many of whom are marginalized and may have otherwise very limited access to ambulatory care. In addition to doctors, nurses, and social workers, such care may include peer recovery coaches, whose potential value and services are discussed in Section 2A. Clinical services delivered as part of SSPs may include care for acute conditions such as upper respiratory infections, chronic conditions such as diabetes or cardiovascular diseases, or most commonly, preventive screening and other preventive interventions such as flu shots or other vaccinations. Such programs may also include family planning services. Individuals who test positive for HIV, HCV, or both should be referred for treatment. Positively identified individuals will require access to necessary health care including effective antiretrovirals and direct-acting antiviral treatments that treat HIV and HCV, respectively, as well as treatment for their underlying OUD, including access to MOUD and other treatments for OUD.
81. Drug checking services enable people who use drugs to have the content of their drugs chemically analyzed, allowing them to make informed decisions about use.<sup>274,275</sup> Drug checking, a method pioneered in Europe, has the potential to introduce the concept of product safety into the unregulated illicit drug supply in the U.S. Currently, its use in the U.S. has been limited to raves or similar parties, primarily for the testing of 3,4-methylenedioxy-methamphetamine (MDMA, or “ecstasy”). Recently, some U.S. SSPs have begun distributing fentanyl testing strips originally designed for testing urine samples. Such “fentanyl checking” allows users to objectively determine whether their drug samples contain fentanyl or fentanyl analogues.
82. While few evaluations of fentanyl testing services have been performed, recent assessments suggest a high degree of acceptability and potential utility among PWID,<sup>276,277,278</sup> and early evidence suggests checking for fentanyl in drug samples at SSPs, police departments, and other relevant sites may help guide appropriate responses to the changing nature of the opioid epidemic. For example, a study conducted in Greensboro, North Carolina, found that 43% of PWID reported a change in drug use behavior and 77% indicated increased perceived overdose safety by using fentanyl test strips.<sup>279</sup> At a harm reduction site in British Columbia, Canada, 36% of participants reported planning to reduce their drug dose while 11% planned to dispose of their drug after testing for fentanyl.<sup>280</sup> These findings were

## CONFIDENTIAL

mirrored in a study of PWID in Baltimore, Boston, and Providence, which found that over half of respondents would utilize fentanyl testing every day.<sup>281</sup> It is important to note that there is no evidence to support that harm reduction services (e.g., SSPs) encourage and enable drug use.<sup>282</sup>

83. Components of abatement interventions. The SSP run by the Cabell Huntington Health Department should be expanded and new locations established so as to provide adequate coverage of services such as access to clean syringes and injection equipment, safe disposal of used syringes, and screening and referral services to PWID, particularly for those who use heroin and fentanyl. SSPs should provide continuous services at consistent locations and hours using different approaches including permanent SSP sites and mobile SSP units, generally vans. Investment in establishing or expanding fentanyl testing services is also needed to mitigate some of the risks – including overdose and death – associated with fentanyl use or fentanyl laced drugs. Two main channels of fentanyl testing services should be implemented: fentanyl test strips and drug checking machines. Fentanyl test strips should be available for use or distribution at SSPs, homeless shelters, and other relevant locations to achieve optimal coverage and reduction in harm. Drug checking machines, such as Fourier transform infrared spectrometers (FTIRs), are needed to track and document changes in the illicit drug supply to inform timely responses by health officials and law enforcement. At minimum, large SSPs, police departments, and medical examiners may all benefit from the use of such drug checking machines. These efforts are estimated and described in Section 1E of the Redress Model.
84. In conclusion, abatement programs in the Community should include resources to further support harm reduction. SSPs, including outreach, delivery of non-OD care, and referral for treatment, should be expanded sufficiently so as to reach the broadest population of individuals who inject drugs in the Community. Such programs should include increased availability of drug checking services to assist users in knowing when fentanyl may be present within drug supplies.

**F. Surveillance, Evaluation, and Leadership**

The goal of surveillance is to convert local data to actionable intelligence at a local level by gathering, curating, and disseminating timely information about key dimensions of the epidemic to public health officials, policy-makers, and other stakeholders. This is important because the absence of timely, granular information about the epidemiology of opioid use, addiction, and overdose at a local level has limited the ability of stakeholders to rapidly design, iterate and evaluate targeted interventions to address the epidemic in the Community. However, in addition to surveillance, leadership – including comprehensive planning and multi-agency coordination – is important in order to maximize efficient use of constrained resources to address the epidemic.

85. The opioid epidemic is a complex phenomenon with many different dimensions and impacts, and while it continues to change and evolve at a national and state level, at a local level these changes have often been even more profound. One consequence of this is that policy-makers and public health officials such as those leading the Community need timely and accurate information on key parameters they can use to make informed decisions about resource allocation.<sup>283</sup> For example, the deployment, targeting and evaluation of academic detailing programs depends vitally on timely information regarding opioid prescribing across prescribers. Similarly, naloxone distribution and training should be designed based on the relative incidence, causes and outcomes of overdose within small, well-defined geographic areas.
86. Fortunately, the City of Huntington, through the early initiatives of the Mayor Williams' Office of Drug Control Policy (MODCP), recognized the need for timely and comprehensive data from the community to guide early measures and initiatives, including: the Law Enforcement Assisted Diversion (LEAD) program; Cabell Drug Court; Lily's Place and Recovery Point; Huntington Quick Response Team (QRT); and the Harm Reduction Program at CHHD.<sup>284,285,286</sup> Early in the response to the opioid crisis, Scott Lemley collected surveillance data from multiple sources such as 911 calls, EMS reports, and police reports to help the MODCP to identify key policies and populations to receive interventions in the Community.<sup>287</sup> Currently, additional surveillance capacity includes the ability to monitor fatal and non-fatal overdoses in real-time using the Overdose Detection Mapping System (ODMAP)<sup>288</sup> and the Marshall University Data Dashboard.<sup>289</sup> The West Virginia Office of Drug Control Policy recently launched an interactive Opioid Data Dashboard that displays monthly trends of EMS calls for suspected overdoses, fatal overdoses, naloxone administrations and outcomes, and ED visits that are updated every one to two months.<sup>290</sup>
87. These methods of assessing the opioid epidemic are important and should be expanded to include other important dimensions of the crisis including measures that allow for near real-time, integrated assessment of prevention, treatment, and recovery within the Community. Such data can be drawn from medical, behavioral health, child welfare, and criminal justice systems, and include, but not be limited to, measures such as: opioid and non-opioid analgesic prescribing, OUD treatment capacity, MOUD use and persistence, non-fatal and fatal opioid overdose events, naloxone distribution and use, infants who experience withdrawal symptoms, child abuse and neglect reports, foster care entries, criminal justice offense type, sentencing, treatment received while under court supervision (e.g., mandated treatment) and reoffending rates. Valuable information – relevant to the Community – can be compiled from national, state and local levels. For example, clinical information can be derived from CSMP, EMS, and hospital and emergency administration data. Behavioral health data can be drawn from sources such as the minimum data sets that are directly collected by all Single State Authorities (e.g., state agencies on drug abuse) for specialty treatment programs and from Medicaid programs, as well



## CONFIDENTIAL

as from sources such as the Drug Enforcement Agency's National Technical Information Service (NTIS) database of waived prescribers and state and federal databases on specialty treatment providers (e.g., the SAMHSA treatment locator which is updated annually and provides street addresses for treatment programs). Criminal justice data can be derived from the West Virginia Department of Corrections and Rehabilitation. Child welfare services and foster care/adoption data can be accessed via the Families and Children Tracking System (FACTS) maintained by the West Virginia Department of Health and Human Resources (WVDHHR).

88. There is no question that the collection, curation, and integration of these data will require substantial cooperation, effort, and tenacity. Many of these data systems are maintained by different private or public entities, and in some cases, significant administrative, legal, and cultural barriers will have to be overcome. However, there is tremendous promise in such efforts, especially since the effects of the opioid epidemic, and remedies to abate it, extend across medical, behavioral, and criminal justice and child welfare systems. Linkage of these data will provide a more comprehensive understanding of the current issues associated with the epidemic and identify areas where local communities should focus.
89. For example, consider the case of policing, where public health oriented policing interventions, such as a focus on overdose deaths, use of naloxone, education regarding addiction and stigma, and treatment on demand, can play an important role in reducing opioid-related injuries and overdose deaths.<sup>291</sup> Routine tracking of measures that evaluate these and other approaches can be used for a number of purposes including to establish benchmarks, allocate resources, and evaluate the success of new initiatives with respect to process, such as how many doses of naloxone have been dispensed, and outcomes, such as how many overdoses have been reversed.
90. Surveillance must be combined with leadership such as has been demonstrated by individuals within key local institutions such as Jan Rader and other first responders (i.e., EMS, fire department, and police), CHHD, Marshall University, Marshall Health, Cabell Huntington Hospital, Saint Mary's Medical Center, and the City of Huntington Mayor's office. In other words, a cohesive, multidisciplinary team should coordinate a given community's response across multiple agencies, departments and stakeholders and based on a comprehensive needs assessment. Representation, and appropriate staffing, from key entities such as the medical, behavioral health, children's services and criminal justice systems within the community is vital. The overall effectiveness of a community's response will rest in part upon the relationships among those coordinating the effort, and the overall coherence and shared vision among relevant parties. This team should meet regularly to review programs and policies, as well as assess surveillance data and emerging evidence from the field. In addition to serving as liaisons to their respective organizations, as well as more broadly championing the community's strategic response, the team should troubleshoot, redirecting resources and re-engineering how individuals with chronic pain, non-medical opioid use or OUD are identified and managed within relevant systems of care.
91. Components of abatement interventions. The Community has established an excellent foundation for data collection and surveillance of the opioid epidemic through efforts by the Marshall University Data Dashboard and Scott Lemley from the City of Huntington and Mayor's Office of Drug Control Policy. As reflected in Section 1F of the Redress Model, abatement efforts in the Community should build upon this foundation by allocating sufficient resources to support a dedicated team of professionals (an "Opioid Abatement Coordinating Unit"), including but not limited to epidemiologists, data scientists, clinicians, law enforcement experts, and community advocates, that focuses on: (1) improving the timeliness, quality, coordination and integration of existing data streams (e.g., surveys, mortality

## CONFIDENTIAL

records, etc.); (2) conducting opioid-specific surveillance activities to better understand key aspects of the dynamic nature of the epidemic that are not visible through existing data channels; (3) enhancing the accessibility, visibility, and shareability of data related to the epidemic through multi-agency coordination, preparation of reports and data summaries, creation of dashboards, and responses to data requests from relevant stakeholders; and (4) performing comprehensive evaluations of interventions and proposing evidence-based recommendation so as to maximize further returns. Quality surveillance data is key to identifying and responding to changing needs within the Community.

92. In conclusion, abatement programs in the Community should include resources to support the further development and management of state-of-the-art surveillance programs that can serve as mission control centers as remedies are deployed, iteratively refined and evaluated. Such resources should allow for relevant data from a variety of local, state, and national sources to be gathered, curated, integrated and analyzed, and in turn, reported back out using a variety of different approaches customized to the specific needs of key stakeholders such as public health officers, treatment providers, children's services, and law enforcement officials. Remedies should also include resources to support the leadership that will be needed for a well-coordinated, longitudinal, multi-stakeholder initiative.

**CATEGORY 2: TREATMENT – SUPPORTING INDIVIDUALS AFFECTED BY THE EPIDEMIC**

This category of my Abatement Plan seeks to better identify individuals with OUD in the Community and to remove clinical, economic, and social barriers diminishing their access to comprehensive, coordinated high-quality care.<sup>o</sup> One important principle is to close treatment gaps. However, many other interventions are necessary in addition to the closure of treatment gaps, including a transformation of the delivery system of care in the Community so that it “mainstreams” addiction care and delivers it as consistently and compassionately as it does care for pediatric cancer or amyotrophic lateral sclerosis (ALS).

**A. Connecting Individuals to Care**

The goal of this remedy is to address the widespread treatment gaps that prevent so many from seeking or being retained in care. For example, studies show that some individuals who overdose in the field are not formally evaluated or successfully linked with treatment,<sup>292,293</sup> while many others, even if brought to an ED are discharged rather than transferred to an inpatient induction/rehabilitation facility, enrolled in an intensive outpatient (IOP) program or initiated on medication for MOUD.<sup>294</sup> There are opportunities to improve the identification and treatment of individuals with OUD within each of these settings. Because of this, multiple methods are needed to connect people to services, ranging from helplines, peer-recovery coaches and transportation assistance to “bridge programs” and Quick Response Teams designed for those newly encountering the health care system due to an opioid overdose or other acute opioid-related harm.<sup>p</sup>

93. Helplines. Helplines have been used as an effective tool for delivering information to people in crisis for decades, assisting callers by linking individuals to care and resources to address their individual circumstance. Helplines serve as an inexpensive, efficient, and immediate source of information for individuals affected by SUD. In 2015, West Virginia implemented the HELP4WV helpline,<sup>295</sup> a 24-hour phone, text, and chat line designed to streamline the process of accessing treatment for SUD and behavioral health. The helpline is primarily staffed by peer-support specialists and recovery coaches and provides direct transfers to withdrawal management facilities and referrals to inpatient treatment, sober living homes, medications for addiction treatment, outpatient therapy and support groups. After linking callers to resources, staff follow up with callers at designated intervals to ensure their needs are being met. Since the beginning of the helpline, HELP4WV has helped more than 41,000 individuals access treatment. In 2019, more than 11,000 individuals called the helpline, of which 75% called on behalf of themselves, 13% called on behalf of a family member, and nearly one in ten (821) were from Cabell County. Opioids were the most commonly used substance among helpline callers (40%). Over 14,000 callers have received a “warm hand-off” to a service provider,<sup>296</sup> nearly 2% were referred to MOUD, and 43% were referred to detoxification centers; of those seeking detoxification, many were able to enter a program within 24-hours.<sup>297</sup> Staff are also available to assist callers with enrolling in Medicaid or private health insurance. The helpline is one tool to address barriers for those with OUD in finding treatment, timely linkage and entry into treatment. Importantly, HELP4WV is able to share information on drug type and referral outcome (e.g., detoxification center or medications for addiction treatment) with policy-makers to identify trends in drug use, treatment needs and capacity building.

94. Peer Recovery Coaches. While there is an urgent need to train more primary care practitioners to identify and treat OUD, peer recovery coaches provide one promising and cost-effective model to

<sup>o</sup> It is also important to consider individuals with opioid dependence and non-medical use who may not yet fulfil formal criteria for an OUD; I consider these individuals in Section 4E.

<sup>p</sup> Ensuring adequate staffing of social workers, case managers, and addiction counselors in clinical, behavioral, criminal justice, and community settings is also vital and discussed elsewhere in my report.

## CONFIDENTIAL

engage and serve individuals with OUD.<sup>298,299</sup> Paraprofessionals with lived experience in recovery can assist patients in accessing medication treatment, can help navigate barriers to treatment engagement and retention, such as provider stigma and transportation. Peer recovery coaches can draw upon their lived-experience and methods such as motivational interviewing to strengthen individuals' motivation to seek treatment and to remain engaged. Coaches may provide a number of different types of resources or support to individuals with OUD, ranging from psychological support to connections to recovery communities, activities, and events.<sup>300</sup> Two systematic reviews examining the impact of peer-recovery services suggest the positive impact that such services can have on those with SUDs.<sup>301,302</sup> Peer recovery coaches have been integrated in many programs within the Community, including the West Virginia Criminal Justice System, Quick Response Team (QRT), Project Engage, the Harm Reduction Program, Project Hope for Women and Children, and Maternal Addiction Recovery Center (MARC).<sup>303</sup> Further expansion and integration of peer recovery coaches into programs, such as reentry programs, adult criminal and family and drug courts, and child welfare services are important to connect individuals with OUD to services and treatment in the Community.

95. Transportation. Transportation, particularly in rural communities, represents a significant barrier for those with OUD to access and adhere to treatment.<sup>304</sup> Though public transportation is available within the City of Huntington, half of the County residents live outside of the City and may not have consistent or reliable transportation needed to attend treatment, thereby reducing the likelihood that they will be able to adhere to treatment.<sup>305</sup> In March 2020, the WVDHHR expanded transportation for individuals living within and outside traditional service routes to access OUD treatment and recovery services.<sup>306</sup> However, transportation needs remain for other individuals as well, such as those accessing the harm reduction services or for pre- and post-natal appointments for women with OUD. Providing travel vouchers, reimbursing taxi or ride-sharing costs, or providing gas cards are additional options to improve access to such services.<sup>307</sup>
96. Emergency Department Bridges. ED visits represent a key opportunity to link individuals to treatment after an overdose. One randomized control trial found that patients who received ED-initiated MOUD were two times more likely to be engaged in treatment one month after intervention, compared to patients that received a Brief Negotiation Interview or referral alone (78% vs 37-45%, respectively).<sup>308</sup> While patients in all three intervention groups reported lower HIV risk behaviors, those that received ED-initiated MOUD had lower self-reported opioid use one-month after baseline. In reviewing the response to the outbreak of 26 opioid overdoses within a six-hour window in Huntington in August 2016, public health officials recognized that failing to link individuals to treatment during their ED visit was a missed opportunity and break in the continuum of care.<sup>309</sup> Adequate expansions in infrastructure are needed to increase treatment capacity to meet current demand as well as to accommodate individuals who will be connected to care through an increasing number of initiatives. One program, Project Engage, uses peer recovery coaches within the ED and other clinical settings in Cabell County hospitals to connect individuals with SUD to treatment programs and other resources following hospitalization.<sup>310</sup>
97. Quick Response Teams (QRTs). Sometimes known as a Drug Abuse Response Team (DART), these teams generally consist of a law enforcement officer, first responder and addiction counselor, and they are designed both for first response to narcotic-related emergencies, as well as to approach overdose victims during "recovery windows", a 48- to 72-hour period following an overdose when individuals may be most amenable to entering treatment. These teams are similar to rapid-response, mental health evaluation teams; QRT's or DART's are focused specifically on overdoses or other opioid-related emergencies, include addiction experts and also target individuals who may have had a recent overdose

## CONFIDENTIAL

but who are not experiencing an active emergency.<sup>311</sup> Established in December 2017, a Huntington QRT has included a paramedic, peer recovery coach and social worker or member from the faith-based community.<sup>312</sup> Following referrals from EMS or family and friends, the QRT seeks to make contact with the individual, and if they accept treatment, the QRT arranges for them to quickly enter treatment. If the QRT is unable to make contact, they leave treatment information behind. In an analysis of the Huntington QRT's outreach, one in three individuals who were contacted by them following an overdose entered treatment for SUD.<sup>313</sup> Because of their timely response as well as multidisciplinary composition, these teams are one means of helping to strengthen the community-individual relationship as well as to bridge one treatment gap that prevents many individuals with OUD from seeking care.

98. Components of abatement interventions. As described in the Redress Model, existing resources, such as the HELP4WV helpline and Huntington QRT, should be leveraged and amplified through media outreach and other communications to reach additional individuals with OUD. In addition to their use in clinical settings, peer recovery coaches should be available at other locations where they are highly likely to interact with individuals with OUD such as drug courts, reentry programs, family drug courts, child welfare services, recovery houses and opioid treatment programs. Increasing availability of case managers to programs that serve the entire OUD population will fortify the care continuum, improving linkage to care and treatment outcomes. Bridge programs should be implemented within Cabell County EDs to facilitate initiation of MOUD. Transportation for services including and adjacent to OUD treatment should be provided. Finally, given the success of Huntington's QRT, additional QRTs should be established in the County and adequately staffed and resourced proportional to the burden of non-fatal overdoses. Each QRT should consist of an addiction counselor, first responder and peer recovery coach. QRTs should be notified in a timely manner so as not to miss the window when they are most effective, and also have access to and maintain a follow-up database to keep track of individuals connected to care.
99. In conclusion, abatement programs in the Community must support both the linkage of individuals to care and their retention once in treatment and recovery. Helplines, QRTs, peer recovery coaches, case managers, and Bridge programs are effective and established tools to link individuals to treatment. Since people who use drugs may be difficult to reach, efforts that build rapport and maximize the quality of interactions are crucial. There are also key reachable moments, such as during hospitalization and "recovery windows" following an overdose and during initial contacts with child protective services, when people who use drugs may be most amenable to initiating treatment. Retention in treatment must be supported by transportation assistance and other measures to increase access, ensuring smooth transitions across the continuum of care and through peer support.

## B. Treatment for Opioid Use Disorder

Fortunately, there are many treatment options already provided within the Community for those with OUD. However, as I describe below, more investments are needed so as to fulfill the overarching goal of this remedy, the provision of readily accessible treatment to patients with OUD.<sup>314</sup> Such treatment should include access to FDA-approved MOUD, since these are efficacious treatments that not only reduce the likelihood of opioid use, but also the risk of overdose, criminal activity, and the transmission of infectious disease.<sup>315</sup> However, not everyone with OUD requires MOUD, and even when it is provided, it should be part of a full continuum of care, including care that addresses other acute, chronic, and preventive needs.

100. The FDA has approved three medications for the treatment of OUD and the choice of medication should be tailored to the unique needs of each individual.

- 1) Methadone is an opioid agonist, which means it can activate opioid receptors in the brain and provide pain relief similar to other opioids. It can prevent withdrawal symptoms, reduce cravings and block the euphoric effects of other opioids. However, due to federal regulations, its dispensing for OUD is limited to certified opioid treatment programs, serving as a barrier to broader use.<sup>316</sup>
- 2) Naltrexone is an opioid antagonist that blocks the effects of other narcotics. Provided as a daily pill or monthly intramuscular injection, it can be prescribed in ambulatory settings and does not have any abuse or diversion potential.<sup>317</sup> However, it cannot be administered to individuals with opioids in their systems, since doing so will precipitate abrupt opioid withdrawal.<sup>318</sup>
- 3) Buprenorphine is a partial agonist and partial antagonist of the opioid receptor, with significantly lower potential to produce euphoria or respiratory depression than other opioids. Appropriately waived physicians may prescribe buprenorphine in offices, community hospitals, or correctional facilities.<sup>319</sup> While the main form of buprenorphine for OUD is an orally administered combination of buprenorphine and naloxone (the latter of which is an opioid reversal agent as described in Section 2E), other formulations of buprenorphine are likely to be FDA approved in the years to come.<sup>320</sup>

101. Historically, some have opposed MOUD based on a number of misconceptions, including that it is invariably diverted (it is not, and when diversion does occur, it is often to avoid the dysphoria of opioid withdrawal including symptoms such as agitation, anxiety, muscle aches, nausea, and vomiting),<sup>q</sup> or that it is simply substituting one addiction for another (it is not).<sup>321</sup> Rather, MOUD increases social functioning and retention in treatment, allowing individuals a better opportunity to reintegrate within their families and communities and to transition from active addiction through treatment into recovery.<sup>322,323</sup> It is also associated with a wealth of other positive outcomes, including decreased opioid use and improved survival.<sup>324</sup> Because of this, its use is supported by numerous authoritative sources, including the CDC, National Institutes of Drug Abuse, American Society of Addiction Medicine, and SAMHSA. It is also supported by global authorities such as the World Health Organization, which includes buprenorphine and methadone as Essential Medicines.<sup>325</sup> However, as I discuss further in Paragraph #107, MOUD is not a stand-alone therapy nor does everyone require it; when it is used, it must be accompanied by other clinical interventions as part of comprehensive care for those with OUD.

---

<sup>q</sup> Even the need for such defense of MOUD underscores the marked stigma and asymmetry that exists between OUD and other diseases; for example, it is hard to imagine a setting where the use of inhalers for asthma, insulin for diabetes, or even psychotropics for mental illness, would be met with such skepticism or outright opposition.

## CONFIDENTIAL

102. Despite the potential of MOUD to help address the opioid epidemic, it is severely underutilized. For example, an analysis of 2012-2013 data from the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC) indicated that fewer than one in five individuals with non-medical prescription OUD were ever treated,<sup>326</sup> and rates of use of MOUD within publicly funded treatment programs have historically been low.<sup>327,328</sup> Combined with low use of MOUD even within programs offering it, some estimates are that as few as one in ten individuals with OUD receive MOUD.<sup>329</sup> Worsening matters further, treatment courses are often short, with rates of treatment discontinuation and relapse high,<sup>330</sup> and even periods of MOUD use are often punctuated by the receipt of prescriptions for non-MOUD opioids, underscoring common and serious lapses in care even for those accessing these treatments.<sup>331,332</sup> The situation is further complicated in Cabell County, where the lack of public transportation for half of the County residents that live outside the City of Huntington is a barrier to accessing MOUD providers.<sup>333</sup>
103. A 2018 study from Massachusetts provides useful context for the benefits of MOUD in decreasing mortality.<sup>334</sup> In this analysis of adults who survived an overdose between 2012 and 2014, in the 12 months after an overdose, 11% received methadone, 17% received buprenorphine, and 6% received naltrexone. The median duration of treatment was short (one to five months). Both methadone and buprenorphine utilization were associated with decreased opioid-related and all-cause mortality.<sup>r</sup> Thus, this study underscores: (a) large gaps in MOUD adoption; (b) high discontinuation rates; and (c) the life-saving benefit of methadone and buprenorphine.
104. There are many barriers that account for the large gap between the number of individuals with OUD and the proportion that are treated with MOUD. Underlying these barriers are misconceptions about the nature of OUD and the effectiveness of MOUD, as well as other concerns such as those identified in Paragraph #32. In a recently published study based on national surveys, my colleagues at the Johns Hopkins Bloomberg School of Public Health found that only about one in three substance use treatment facilities offered MOUD in 2016, and fewer than one in sixteen (6.1%) offered all three.<sup>335</sup> There is also a large shortage in the number of providers who are equipped to provide care for those with addiction.<sup>336,337</sup> Finally, the costs of MOUD, as well as other treatments for OUD, have historically been an impediment for many individuals who might otherwise seek care.<sup>338</sup> While our own work,<sup>339,340</sup> and that of others,<sup>341</sup> suggests that health plans are increasingly modifying their coverage and reimbursement policies so as to address the opioid epidemic, many individuals with OUD still face economic barriers to treatment, with a 2016 Department of Defense estimate of the costs of MOUD<sup>342</sup> exceeding that of diabetes mellitus (\$3,560) or kidney disease (\$5,624).<sup>343</sup>
105. Overcoming these economic and structural barriers is just the first step in achieving the potential for high quality OUD care.<sup>344</sup> This is because there is enormous stigma associated with opioid addiction, which discourages patients from seeking treatment and discourages clinicians from providing it (also see Section 1B).<sup>345</sup> While OUD is a brain disease, it is often framed as a moral failing instead; treatment systems remain marginalized rather than “mainstreamed”; language about “legitimate pain” and “junkies” and “getting clean” perpetuates such marginalization; and many features of the criminal justice system’s intersection with OUD also contribute to the persistent organizational failures that are seen.<sup>346</sup>

---

<sup>r</sup> The authors speculated several reasons they may not have observed a statistically significant benefit with naltrexone, including a small sample and short duration of use, with most patients receiving it for a single month. In addition, the study was unable to differentiate oral from intramuscular naltrexone.

## CONFIDENTIAL

106. Investments in the treatment infrastructure must be made along a full continuum of care, from overdose reversal to support that enables long-term recovery. Individuals with OUD need regular contact with health care professionals responsible for supervising their pharmacologic and/or behavioral treatments, screening for adverse events or treatment failures, and delivering supportive care and psychological counselling. In many ways, such a model is no different than a model of care for someone with asthma or diabetes. These diseases, and their treatments, cannot be managed in a vacuum. Medications, whether MOUD or treatments for other chronic diseases, should be provided in the context of a therapeutic relationship where risk factor attenuation, supportive counseling, medication monitoring, and attention to other health care needs take place. In the case of OUD, the delivery of structured social support and counseling may be especially important, given that these engagements assist patients in establishing the social reconnection that can be critical to long-term recovery. Treatment must also recognize the importance of screening and treatment for infectious diseases such as HCV and HIV,<sup>347</sup> as well as attending to chronic pain, other SUDs, and mental illness, all of which are common among individuals with non-medical opioid use or OUD.<sup>348</sup>
107. In addition, no single treatment is right for everyone, and not every individual with a history of OUD should be treated with MOUD. For example, some people have a remote history of OUD and while they retain a lifelong sensitivity and vulnerability to opioids, just as an alcoholic does to alcohol, many of these individuals are living productive, successful lives in recovery without MOUD. Some individuals have been treated with MOUD but successfully tapered off of such treatment while maintaining a healthy recovery through abstinence-based, 12-step programs such as Narcotics Anonymous, psychological counselling, and supportive therapy, or combinations of these or other approaches.
108. There are many different models for expanding access to OUD treatment within the Community, and this remains an area of rapid growth and program evaluation nationwide. For example, Office-Based Opioid Treatment (OBOT) allows for physicians completing a waiver program to prescribe buprenorphine for OUD within primary care settings; the Medicaid Health Home Model integrates MOUD and behavioral health treatments with primary care for people with OUD; and the Hub-and-Spoke Model triages patients between primary care clinics for uncomplicated patients with OUD (the “spokes”) and centralized clinics equipped to care for patients requiring methadone or whose complex behavioral and medical needs exceed those routinely provided in primary care settings (the “hub”).<sup>349</sup> In Huntington, Marshall University’s Recovery Center is an existing “hub” that is currently implementing the Comprehensive Opioid Addiction Treatment (COAT) program; the clinic provides centralized services where individuals within the county can be referred for buprenorphine initiation and in most cases, subsequently transition back to outlying primary care “spokes”.<sup>350</sup> Other models are based on ED Bridge Programs as described in Paragraph #96.<sup>351</sup> Yet other models rely more heavily on telemedicine for MOUD supervision, such as one deployed in within the West Virginia University School of Medicine.<sup>352</sup>
109. Treatment programs differ along many dimensions, such as the degree to which they focus on the delivery of pharmacotherapy, behavioral services, care integration, and community-based education or outreach. It is important that some programs are designed to deliver care to individuals who have initiated MOUD, or “induction”, in low-barrier settings such as SSPs or EDs, given that the marginalization and social isolation of some of these individuals increase their likelihood for relapse or treatment discontinuation. The optimal program for a given city or county will depend upon a variety of different factors including the adequacy of the primary care and specialty workforce, urbanicity, and existing infrastructure devoted to addiction treatment.



&21),'(17,\$/

0RVW LQGLYLGXDOV ZLWK 28' ZKR DUH HQWHULQJ WUHDWPH  
VHWWLQJ DOWKRXJK LQLWLDO HYDOXDWLRQ DQG DSSUR  
LQGLYLGXDOV OLNHOLKRRG RI VXFFHVVIXO WUHDWPHQW  
VHYHUDO KRXUV RI SDWLHQW HQJDJHPHQW IRXU WR ILYH G  
LQFOXGH VHUYLFHV UHQJLQJ IURP LQGLYLGXDO JURXS D  
YRFDWLRQDO WUDLQLQJ DSDUHQWPHQW LQGLYLGXDOV ZLW  
KRVSLWDOLJDWLRQ IRU LQLWLDWLRQ RI WUHDWPHQW VXFF  
LQIHFWLRQ DGYDQFHG FRPRUELG GLVHDVH H J KHDUW  
LOOQHVV H J ELSRODU DIIHFWLYH GLVRUGHU PDNHV DPE

&RPSRQHQWV RI DEDWHPHQW LQWHUYHQWLRQV &DSDFLV  
&RPPXQLW\ H J 352\$&7 VKRXOG EH H[SDQG HG ,QGLYLGX  
KDYH WLPHO\ DFFHVV WR DSSURSULDWH WUHDWPHQW EDVH  
RU LQSDWLHQW FDUH VHH 6HFWLRQ % RI WKH 5HGUVV 0R  
KLJK TXDOLW\ FDUH WR PD[LPL]H UHWHQWLRQ DQG RXWFRP  
352\$&7 RU 0\$5& DUH HVVHQWLDO SURJUDPV DYDLODEOH W  
\$GGLWLRQDO HIIRUWV VKRXOG DOVR IRFXV RQ UHDFKLQJ  
VXFK DV DGROHVFHQWV LQGLYLGXDOV ERWK ZLWKLQ DQG  
SDUHQWV LQ WKH FKLOG ZHOIDUH V\WHP DQG LQGLYLGXD  
**OLNHO\ WR XWLOLJH DPEXODWRU\ SUDFWLFH IRU SUHYHQW**  
**KHDOWK FDP`V VXFK LQGLYLGXDOV DUH OHVV**





















































## CONFIDENTIAL

changes of a newborn, and progression through recovery in order to successfully remain in recovery. Women should also be taught life skills and provided with job skill and education courses. Wraparound services for pregnant women, new mothers, and infants are primarily delivered through Healthy Connections, a coalition of 20 different community partnerships within the Community.<sup>563</sup> Family navigators provide intensive case management to each family, through a needs assessment, individualized plan, and providing guidance through the available services and resources.

185. Components of abatement interventions. Existing efforts for universal prenatal screening and specialized care such as that delivered through the Neonatal Therapeutic Unit and Lily's Place require continued support. As described in the Redress Model, pregnant women who are diagnosed with OUD must receive adequate treatment and medical care as soon as possible, with continued treatment after they deliver. Additionally, infants born exposed to opioids should receive developmental support through early intervention beginning immediately after birth and special education services at age six. Pregnant women with OUD and new mothers of infants exposed to opioids should receive prenatal and postpartum psychosocial services and, if needed, housing.
186. In conclusion, abatement programs in the Community should include resources for pregnant women, new mothers, and neonates impacted by the epidemic. Such resources are described more thoroughly by Dr. Nancy Young in her expert report, but generally should include: services to identify and treat pregnant women with OUD as early as possible; longitudinal services to support women and address modifiable risk factors throughout their pregnancy; clinical and behavioral interventions in the peri- and post-partum period; hospital and child welfare resources to comply with the Child Abuse Prevention and Treatment Act to ensure a plan of safe care is implemented for the infant and family or caregiver before the infant is discharged from the hospital; and follow-up services to optimize care for the mother-child dyad following hospital discharge, including the required developmental assessment for early intervention if the child is placed in out-of-home care. When possible, the entire family should receive treatment and family-strengthening interventions in order to promote long-term socioemotional health.

## CONFIDENTIAL

### B. Adolescents and Young Adults

The goal of this remedy is to address the direct impact of opioid use, addiction, and overdose on children, adolescents, and young adults in the Community, including prevention programs that delay initiation or escalation of opioid use as well as screening and treatment programs that are customized to the unique needs of these special populations.

187. Children and adolescents are uniquely vulnerable to the consequences of non-medical opioid use, and as the opioid epidemic has flourished, many children and adolescents have been exposed. In 2005, approximately 1.7 million (6.9%) of adolescents aged 12 to 17 years nationwide reported past year non-medical use of pain relievers and 166,000 (0.6%) fulfilled formal diagnostic criteria for OUD.<sup>564</sup> Fortunately, rates of non-medical use of opioids have declined, although even in 2018, 695,000 (2.8%) of adolescents reported such past year non-medical opioid use and 108,000 (0.4%) had OUD.<sup>565</sup> Such use has occurred at high rates within the Community. In 2014, 4.1% of adolescents aged 12 to 17 years reported non-medical use of opioids within the past year in Cabell County and the surrounding subregion of West Virginia.<sup>566</sup> In 2016, the PRIDE survey found that 4.0% of high school and middle school youths in Cabell County reported misuse of prescription drugs within the previous 30 days.<sup>567</sup> The survey found that the top reasons for prescription drug use reported by Cabell County teens include “to fit in”, peer pressure, experimentation, boredom, and to cope with life.
188. The American Society of Addiction Medicine recognizes adolescents (aged 11-21 years), as a special population of interest with respect to SUDs.<sup>568</sup> Not only has early initiation of drug use been strongly associated with a constellation of adverse consequences, such as poor peer and familial relationships, and entanglements with the juvenile justice system,<sup>569</sup> but the ongoing brain development in adolescents during this period of time makes them highly vulnerable to SUDs.<sup>570</sup> Because of their vulnerability and future potential, prevention and early detection of SUDs in youths should be heavily prioritized to minimize the short- and long-term consequences associated with drug use at an early age.
189. Several school-based or family-based prevention programs have successfully delayed or prevented initiation or escalation of drug use in youths.<sup>571,572,573</sup> For example, the Life Skills Training (LST), a widely used school-based module, has been demonstrated in several controlled studies to reduce substance use amongst adolescents.<sup>574</sup> The impact of LST may be enhanced when coupled with the Strengthening Families Program (SFP), a family-based intervention designed to develop and support family bonds and communication. Greater investment should be made in the continued dissemination, implementation and evaluation of these and other evidence-based programs that are focused on primary prevention through education of broad populations regarding the nature of OUD, risks of non-medical opioid use, and availability of treatment and recovery support.
190. Treatment for adolescents with SUD requires a unique approach and should be delivered by individuals with specialized training in the care of this population. For example, unlike older adults who have often spent years coping with substance use accompanied by a deterioration in psychosocial domains such as loss of job or family, adolescent users tend to present at treatment after only a few years of addiction. In contrast to adults with SUDs, adolescents’ drug use is often driven by different factors (e.g., familial discord), may be subject to different environmental influences (e.g., peer effects), and may compromise psychological and social development.<sup>575</sup>
191. A subset of adolescents participating in prevention programs will be identified as high risk. These individuals should be further evaluated through formal screening. While some have advocated for Screening, Brief Intervention, and Referral to Treatment (SBIRT) as a method of formal screening,

## CONFIDENTIAL

SBIRT was developed primarily for alcohol use disorder and concerns with its application to opioids have been raised. For example, some evaluations of SBIRT have failed to demonstrate meaningful increases in abstinence and the effect in positive studies often modest.<sup>576</sup> In addition, SBIRT is predicated upon the availability of follow-up treatment and the motivation of the individual to seek it, and the “brief intervention” of SBIRT was designed for behavioral treatments, which overlooks FDA-approved pharmacotherapies for OUD. Because of this, Screening, Treatment Initiation and Referral (STIR) has been proposed,<sup>577</sup> and demonstrated to achieve better outcomes than SBIRT in at least two randomized trials, one focused on tobacco dependence<sup>578</sup> and the other on OUD.<sup>579</sup>

192. Use of MOUD is recommended for adolescents with severe OUDs. Buprenorphine and naltrexone may provide more suitable treatments for adolescents than methadone, since these can be administered in office-based treatment settings. Furthermore, one of several evidence-based psychosocial therapies should be used simultaneously with MOUD when treating adolescents with SUDs. One type of psychosocial therapy is family-based therapy, which aims to reduce the adolescent's drug use by involving the youth's family members in the treatment process. This mode of therapy facilitates the development of emotional support and communication strategies in order to address issues such as antisocial behavior or dysfunctional family interactions.
193. Within the Community, the Cabell County Substance Abuse Prevention Partnership (CCSAPP), representing a coalition of agencies across the County, have implemented multiple programs and initiatives to prevent substance use.<sup>580</sup> Many of these prevention efforts are school-based and include the Too Good for Drugs curriculum and annual Teen Drug Summit. Additionally, the CCSAPP conducts the PRIDE survey, which identifies drug trends among elementary, middle, and high school students. In 2019, the Prevention Empowerment Partnership (PEP) was implemented to grow prevention efforts within the community.
194. Components of abatement interventions. As reflected in the Redress Model, school-based prevention interventions should be expanded in Cabell County and target adolescents in areas identified as having high rates of opioid burden, including overdose deaths and misuse rates. These programs should also identify adolescents at a high risk of opioid misuse or OUD for further screening. The estimates provided for this category are based on needs for screening rather than direct treatment; a subset of those screened will require pharmacologic and, in some cases, inpatient, residential or intensive outpatient OUD treatment. The costs of such interventions are subsumed elsewhere (e.g., Section 2B, “Treatment for Opioid Use Disorder”).
195. In conclusion, abatement programs in the Community should include resources to reach at-risk children and adolescents through school and community-based youth programs. In addition to screening and primary prevention programs to teach and reinforce positive life skills, resources should also be committed to the care of children and adolescents with non-medical opioid use or OUD, which may require expansion of personnel with customized expertise in this area, as well as resources to support the expansion of both pharmacologic and non-pharmacologic treatment and recovery services.

### C. Families and Children

The goal of this remedy is to improve the resources available to support children in the Community who have been orphaned by the epidemic, as well as to assist children and their families who have otherwise been impacted and who may be served through child welfare services. As with Section 4A, additional testimony and evidence are provided by Dr. Nancy Young in her expert report, which I also incorporate for certain populations in the Redress Model for this section.

196. The opioid epidemic has severely impacted many families, and at times, forced children to be separated from parents and placed in foster care. In 2017, there were nearly 443,000 children in foster care in the U.S., an increase of 46,000 children since 2012.<sup>581</sup> Much of this increase is attributable to the opioid epidemic.<sup>582</sup> Of the 273,000 children that entered foster care 2016, over 92,000 (34%) were placed in out-of-home care and parental substance use was reported as a factor in the reason for removal.<sup>583</sup> However, states vary in reporting on this variable and these data are considered an undercount of the prevalence of substance use among child welfare cases nationwide.<sup>584,585,586</sup> Vastly more children – as many as one in eight – live in a household with one or more parents who have a history of past year SUD.<sup>587</sup>
197. In 2017, it is estimated that 54 out of every 1,000 children in West Virginia were affected by the opioid epidemic, compared to a nationwide rate of 28 out of every 1,000 children.<sup>588</sup> In West Virginia, it is estimated that over half of these children resided in a household with a parent with OUD, nearly one in five lost a parent due to death or incarceration, and one in five were removed from their home for foster or kinship care. Of 22,000 total children affected, it is estimated that 1,500 either developed OUD as an adolescent or accidentally ingested opioids as a child.
198. While the precise number of foster care placements that are directly due to opioids is unknown, a recent mixed-methods study commissioned by the U.S. Department of Health and Human Services provides additional context.<sup>589</sup> Geographic regions of the country with higher rates of overdose deaths and drug-related hospitalizations also have higher child welfare caseloads, as well as more severe and complex child welfare cases. In addition, many key informants reported worsening conditions, such as overdose deaths and caseload numbers, between 2015 to 2017. The report also identified many barriers to treatment of impacted families, including misunderstanding and mistrust of MOUD, piecemeal substance use assessments, shortages of family-friendly treatment, and an increasing shortage of foster care homes. The report concluded that while these findings may not represent every geographic region or state, they nevertheless suggest how the opioid crisis has taken an unusual toll on an already strained child welfare system.
199. Children entering the foster care system, including those whose entry has been driven by the opioid epidemic, have both medical and non-medical needs. Federal and state governments often provide support to guardians of foster children for non-medical needs such as food, clothing, and housing. Many children in foster care also have special health care needs, given the high prevalence of chronic medical, developmental, and mental health problems, most of which predate placement in foster care.<sup>590</sup> Lastly, approximately 21-23% of children exiting foster care are adopted.<sup>591</sup> Though some adoption costs are offset with government subsidies, the adoption process and long-term care for affected children can nevertheless impose a heavy economic burden on some families.
200. Child welfare services (CWS) includes a variety of interventions that are undertaken by state agencies charged with optimizing the health and welfare of otherwise vulnerable infants, children, and adolescents. Such services include the investigation of reports of child abuse or neglect as well as the

## CONFIDENTIAL

delivery of services, such as specialized case management and multisystemic or other family-based therapy, to support children and families where abuse or neglect has taken place or is likely. One such approach is Parent-Child Interaction Therapy (PCIT), an evidence-based and family-centered treatment approach that supports the development of parenting skills while reducing negative parent-child interactions. There is a broad evidence-base supporting the value of PCIT in achieving a host of positive outcomes including decreased parental stress and use of corporal punishment and increased parent-child interactions.<sup>592</sup> Both PCIT and, more broadly, CWS are based on several underlying principles including a recognition that a safe and permanent home is the best location for children to be raised and that most parents want to be good parents to their children.<sup>593</sup>

201. Within the Community, the Strengthening Families in West Virginia program focuses on building the following protective factors in all families: parental resilience; social connections; knowledge of parenting and child development; concrete support in times of need; and social and emotional competence of children.<sup>594</sup> Additionally, the Knowledge in Developmental Steps (KIDS) Clinic offers specialized medical and behavioral specialists for children and families affected by substance use.<sup>595</sup> The clinic, a branch of Healthy Connections and River Valley CARES, focuses on: general pediatric care; neurodevelopment; speech, language, feeding, and literacy; physical therapy; and psychological and psychosocial interventions.
202. Components of abatement interventions. CWS agencies in the Community should be adequately funded to deal with cases related to opioid use and prioritize keeping families together. Children who enter or are in foster care or are adopted due to familial opioid use or overdose must receive adequate medical care and comprehensive social services to address their needs. Adoption costs and adoption-related expenses of children who were adopted due to familial opioid use or overdose should be covered. Children in foster care or who are adopted and qualify for PCIT or other specialized programs should receive it.
203. In conclusion, abatement programs in the Community should include resources to support the needs of children who have been orphaned by the epidemic or who have lost a parent, whether or not they have entered the foster care system. In addition, abatement remedies should include resources, including intensive case management and access to therapy, to support the needs of children and adolescents who may have entered child welfare services or otherwise come to the attention of social services organizations due to the opioid epidemic.

## CONFIDENTIAL

### D. Homeless and Housing Insecure

The goal of this abatement remedy is to focus on individuals with OUD in the Community who may be homeless or housing insecure. In order to be successful, abatement programs within the Community must be deployed to address the unique and pressing clinical and public health needs of these often marginalized populations.

204. Homelessness and housing insecurity are traumatic experiences that threaten individuals' economic, psychological, social, and spiritual wellness. In 2019, a point-in-time count estimated that 87 individuals were homeless in Cabell County, although for every individual that is homeless, many more may have "housing insecurity," or problems with the affordability, safety, quality or long-term stability of their housing.<sup>596,597</sup> Once an individual is homeless, it is difficult to re-enter the workforce and attain stable housing. Many homeless individuals also have acute and chronic physical health conditions and mental illness that require specialized treatment. However, financial and other barriers often make it impossible to receive such care, posing stressors that increase the risk of SUDs. For example, one national study found that among those who were homeless and reported substance abuse in the previous year, 75% also had a mental illness.<sup>598</sup>
205. SUD is among the leading causes of homelessness in the country.<sup>599</sup> A survey of homeless individuals in San Francisco found that nearly one-in-three reported opioid misuse in their lifetime.<sup>600</sup> Homeless individuals with OUD are also more likely to become chronically homeless and have a higher risk of overdose and mortality.<sup>601</sup> A Boston study found opioid overdoses to be the leading cause of death among homeless individuals; compared to those that were stably housed, homeless individuals were nine-times more likely to die of overdose.<sup>602</sup> Nationally, opioids are involved in 61% of overdose deaths among those that are stably housed, however, opioids are involved in 81% of overdose deaths among those that are homeless.<sup>603</sup>
206. Prescription drug and opioid misuse are particularly high among homeless youth. A survey of 451 homeless youth found that half reported prescription drug misuse in their lifetime.<sup>604</sup> Of those that misused prescriptions in the past month, one-in-four used prescription opioids alone and one-in-three used heroin. This was associated with an increased risk of future substance use, poor self-reported health, and risky sexual behaviors. The survey also found a higher risk of post-traumatic stress disorder, depression, and suicidal ideation among homeless youth that misused prescription drugs.
207. The causes and effects of homelessness are complex and require multilayered interventions that focus on social support, trauma-informed approach, and personal choice.<sup>605</sup> Homeless individuals with OUD are often ineligible for many housing programs due to their substance use. However, housing and support are critical to providing an environment where individuals can focus on recovery and safely parent their children. A study of homeless veterans, many with OUD, reported that social support was crucial to maintaining housing and recovery.<sup>606</sup> Given the high prevalence of trauma among homeless individuals with OUD, using a trauma-informed approach and building trust are key to engaging them in care.<sup>607</sup>
208. Treatment and housing programs vary in services offered, sobriety requirements (e.g., low-barrier), acceptance of children, and integration with the community (e.g., light-touch). Low-barrier models have been gaining support for their effectiveness in retaining clients in care since they do not require sobriety, and in doing so, account for the fact that relapse is common among homeless individuals with SUD.<sup>608</sup> Because individuals are not penalized for relapsing, trust and rapport are built, which opens the door for engaging them in treatment. A low-barrier program in New York found that clients were

## CONFIDENTIAL

more likely to continue their MOUD as prescribed for OUD three years after initiating the program.<sup>609</sup> The Homeless Multidisciplinary Street Team, a mobile outreach program in California, included a team of specialists that sought out the highest-cost members of the homeless community (e.g., those who are repeatedly hospitalized or incarcerated) to assist them in receiving housing and other treatment in 2016.<sup>610</sup> This program resulted in savings between \$103,000 to \$259,000 for the city of Santa Monica by decreasing the health and public service utilization among high-cost homeless individuals. Additionally, “permanent supportive housing”, or housing with support, is another intervention that addresses chronic homelessness by integrating housing with health care, intensive case management, legal services, social service advocates, and occupational therapy. The U.S. Department of Housing and Urban Development estimates that investments in permanent supportive housing have reduced chronic homelessness by 20% between 2007 and 2019.<sup>611</sup>

209. Recovery housing is also an important component of care for some people with OUD. The National Alliance for Recovery Residences (NARR) defines four levels of recovery housing ranging from self-funded, peer-run, residential facilities where individuals can stay indefinitely (Level 1) to residential facilities that also serve as clinical treatment centers (Level 4).<sup>612</sup> As explained by one public health officer: “Who we spend our time with, where we go, and the things we surround ourselves with all impact who we are and the decisions that we make. Many times, people in early recovery have to give up everything they’ve known... because those people, places, and things put them at risk for relapse or continued use. Early recovery can be painful and isolating. Recovery housing can fill that void with a safe place, compassionate people, and a life full of purpose and fun that doesn’t involve alcohol or drugs.”<sup>613</sup>
210. As with peer recovery coaches, evidence examining the effect of recovery housing on outcomes such as drug and alcohol use, employment and psychiatric symptoms, while limited, suggests beneficial effects.<sup>614</sup> However, concerns have also been raised regarding substandard or outright fraudulent services being provided by some recovery houses. A March 2018 report from the U.S. Government Accountability Office (GAO) examining this matter in five states underscores both the potential promise of recovery housing as well as the importance of adequate state regulatory oversight of their practices to ensure the prevention of exploitative or outright fraudulent housing practices.<sup>615</sup> In 2019, in a bill sponsored by Matthew Rohrbach of Cabell County, West Virginia Lawmakers mandated that all recovery housing and sober living homes receive certification in order to be eligible for state funding.<sup>616</sup>
211. Components of abatement interventions. Efforts to address the needs of individuals with OUD who are homeless or housing insecure, such as those provided by Harmony House, should be supported and expanded upon within the Community. In particular, Permanent Supportive Housing that provides wraparound services for homeless individuals with OUD should be implemented in the Community as reflected in Section 4D of the Redress Model. Additional needs of individuals with OUD who are homeless or have housing insecurity must be addressed as part of any abatement program and are included elsewhere in this report. These include: access to comprehensive, longitudinal OUD treatment (Section 2B); transitional housing for those newly released from incarceration (Section 3B); and treatment and housing services for pregnant women, new mothers, and parents who have reunified with their children under child welfare services (Section 4A).
212. In conclusion, abatement programs in the Community should include resources to reach homeless individuals and those who are housing insecure. By providing social support and focusing on the physical and mental health of these individuals, the Community can reduce the economic and public

CONFIDENTIAL

health impact of the opioid epidemic. Resources should focus on increasing treatment services, personnel and housing for those that are homeless or housing insecure.



## E. Individuals with Opioid Misuse

This abatement remedy focuses on individuals who misuse opioids. This category is important because many individuals engage in such misuse, and they are at elevated risk for a number of harms from opioids, including the development of OUD and overdose death.

213. Opioid misuse is defined by the National Institute on Drug Abuse as “taking a medication in a manner or dose other than prescribed; taking someone else’s prescription, even if for a legitimate medical complaint such as pain; or taking a medication to feel euphoria (i.e., to get high)”.<sup>617</sup> In contrast to OUD, which has formal diagnostic criteria according to the Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (DSM-5), opioid misuse is more common and encompasses a broader continuum of behaviors. It is important to identify individuals with opioid misuse because they are at increased risk of opioid-related adverse events.
214. An estimated 11.4 million Americans, or 4.2% of the total population, reported misuse of prescription opioids or heroin during the past year based on 2017 data derived from the National Survey of Drug Use and Health (NSDUH).<sup>618</sup> While this represents a modest decline from 2015, during which 12.7 million people were estimated to have engaged in past year opioid misuse, the numbers nevertheless remain staggering. Of these 11.4 million individuals, 97.2% engaged in past year misuse of prescription opioids, while 7.8% engaged in misuse of heroin and 4.9% engaged in misuse of both prescription opioids and heroin. Among adults who misused opioids in 2015 who did not have an OUD, approximately two thirds of cases reported the reason for such misuse was the relief of pain, highlighting the overlap of chronic pain with non-medical opioid use as well as the opportunities to address both simultaneously through well-designed abatement remedies.<sup>619</sup>
215. As many as one third of individuals misusing opioids nationwide report that the source of their opioids was a single prescriber,<sup>620</sup> an indication that the health care system, including high prescribing clinicians, continues to play a role in fostering the epidemic.<sup>y</sup> More than one half of those misusing opioids report their source as a friend or relative, a reminder of the continued diversion of opioids that also commonly occurs, although here too, the most common source of opioids among these friends or family members remains a licensed prescriber.<sup>621</sup> The large oversupply of opioids in these settings supports the use of interventions such as prescription “caps” that states and some payers are increasingly using to reduce the volume of opioids prescribed for short-term use,<sup>622</sup> as do several studies indicating that the likelihood of an individual converting to chronic opioid use is significantly greater among individuals receiving greater doses or durations of opioids on their first fills.<sup>623,624,625</sup>
216. In contrast to patients who are using opioids fully as directed under the care of a licensed prescriber, which still poses unacceptably high risks in many patients currently receiving them, patients with opioid misuse should be identified and targeted for early intervention so as to avert their potential transition to OUD or overdose. Methods to identify and address these patients include both the routine clinical use of the West Virginia prescription drug monitoring data and clinical interviewing. Clinical interviewing is useful not only to screen for potential misuse but also to explore motivations for such and to address underlying issues, including sub-optimally treated pain, depression or other behavioral health factors that may be driving such behavior. Once identified, such patients should receive more intensive clinical monitoring, psychosocial interventions, pain management, and in some cases, transition to partial opioid agonists such as buprenorphine or tramadol.

---

<sup>y</sup> By contrast, 1.5% of those with opioid misuse report their source as from more than one doctor, again attesting to the relatively small contribution opioid shoppers make to the epidemic (see Paragraph #32).

CONFIDENTIAL

217. Components of abatement interventions. The components of this abatement category are subsumed in other abatement interventions that I discuss including Health Professional Education (Section 1A), Patient and Public Education (Section 1B), Safe Storage and Drug Disposal Programs (Section 1C), and interventions targeting Adolescents and Young Adults (Section 4B).
218. In conclusion, abatement programs in the Community should include resources devoted to addressing the substantial minority of individuals who misuse opioids. Clinicians should be trained to routinely evaluate patients for such practices, West Virginia Controlled Substance Monitoring Program data should be increasingly integrated within health systems and electronic medical records, and interventions should be deployed to decrease the volume of opioids prescribed, which in turn will decrease the incidence of misuse. Once opioid misuse has been identified, greater clinical resources should be devoted both to addressing opioid misuse directly as well as evaluating and treating potential contributory factors ranging from comorbid social stressors or mental illness to untreated or undertreated chronic pain syndromes.

## VI. MEASURING THE SUCCESS OF ABATEMENT EFFORTS

219. The Community is already undertaking many evidence-based abatement interventions that reflect the overarching principles, as well as strategies, that I outline above. For example, the Community has an active and effective drug court; the CHHD and Marshall University have worked to distribute naloxone and train individuals from the Community in its use; and there are comprehensive wraparound services including case management, residential, and treatment resources for pregnant women and new mothers with OUD (e.g., Project Hope for Women and Children). Key partners include treatment providers such as PROACT and Lily's Place, the CHHD and their harm reduction program, Marshall University, community drug prevention coalitions such as the Prevention Empowerment Partnership, and other community-based organizations.
220. Data – and measurement – is vital to these efforts, a fact that is affirmed by Mayor Steve Williams<sup>626</sup> and the U.S. Department of Health and Human Service's Five-Point Opioid Strategy, which includes "Better Data" as one of the five key strategies to address the crisis.<sup>627</sup> Without such information, the Community is "flying blind", no better off than an airplane pilot without access to the plane's instrument panel.
221. In Section 1F, I discuss opportunities for improved use of data to help inform the development and assessment of abatement remedies within the Community. However, the Community is already using data both to design abatement remedies as well as to evaluate them, despite significant resource constraints. For example, the Mayor of Huntington's Office of Drug Control Policy used data to inform early abatement efforts that focused on Drug Courts and overdose prevention,<sup>628</sup> and Marshall Health is now using its opioid dashboard to track NAS and mother characteristics associated with NAS, exposures of babies to opioids, OUD, and opioid overdose deaths.
222. The core measures in the Community's ultimate abatement plan should represent essential outcomes selected because of their linkage to abatement goals and their ability to capture key consequences of improved prevention, treatment, and recovery services. Each measure should be assessed on a quarterly, biannual, or annual basis, understanding that the more frequent an assessment occurs, the more rapidly such information can be used to iteratively inform further abatement. Thus, measures should provide a means of performing high-level evaluation of the global effects of abatement efforts on central outcomes of vital clinical and public health importance. Examples of potential measures, some of which are currently actively assessed by Marshall Health, include:
- Rates of non-fatal opioid overdose
  - Prescription opioid overdose death rate
  - Heroin/illicit fentanyl overdose death rate
  - ED visits or hospitalizations related to opioids
  - Percent of 10<sup>th</sup> graders reporting non-medical opioid use
  - Rate of infants born with neonatal abstinence syndrome
  - Rate of children placed in foster or kinship placements
  - Rate of complications associated with opioid use

During the coming years, as additional resources are invested in reducing the oversupply of opioids and attendant harms, there will also be opportunities to continue to enhance, collate, link and centralize measures with others that capture other dimensions of the epidemic, including: the accessibility and quality of both pain and OUD treatment; treatment delivery within the criminal justice system; and the performance of the care delivery system for other populations, such as the commercially insured, for which the state or county may not serve as payer.

**VII. ESTIMATED IMPACT OF PROPOSED ABATEMENT REMEDIES**

223. There is intuitive scientific appeal in using randomized experiments to assess the effectiveness, and comparative effectiveness, of different interventions to reduce opioid-related morbidity and mortality. However, such investigations are impractical, and often unethical as well.<sup>629</sup> As a result, policy-makers and other stakeholders must rely upon observational evidence that is prone to shortcomings. For example, the effect of an intervention such as a naloxone law may be delayed, obfuscated by other contemporaneous policy changes, or associated with unintended effects that diminish its ultimate welfare impact. Indeed, many studies examining the impact of various abatement remedies have assessed multiple simultaneous interventions, such as an intervention to reduce opioid oversupply that combines educational outreach to clinicians with clinical decision support instituted within electronic medical records. These challenges underscore the importance of continued study by clinicians and public health experts, as well as investments such as the National Institutes of Health's HEAL Initiative.<sup>630</sup>
224. While some may argue that "further research is needed", there is already a vast scientific evidence base to support the abatement interventions discussed herein. For example, there is unequivocal evidence of the benefits of treatment for OUD, the life-saving potential of naloxone, and the value of investments made in children and families impacted by SUD. While using this evidence to estimate the expected impact of specific interventions within specific communities is prone to uncertainty, some general conclusions regarding abatement impact can be drawn.
225. First, the impact of treatment for OUD on reducing OUD rates over time, which represents one of the most important, and costly, interventions prescribed in this report, has been well described. For example, in a systematic review and meta-analysis of MOUD, the pooled all-cause mortality was 0.92 (95% confidence intervals [CI] 0.79-1.04) per 1,000 person-years among individuals during treatment, 1.69 (CI 1.47-1.91) among those after treatment and 4.89 (CI 3.54-6.23) among those who were untreated.<sup>631</sup> In another careful and comprehensive systematic review and meta-analysis, Sordo and colleagues found that the pooled all-cause mortality rates were 11.3 and 36.1 per 1,000 person-years in and out of methadone treatment (unadjusted out-to-in rate ratio 3.20, CI 2.65-3.86), and 4.3 and 9.5 in and out of buprenorphine treatment (2.20, CI 1.34-3.61).<sup>632</sup> In other words, treatment for OUD reduced the likelihood of death by at least *a half* in these analyses.
226. Second, different interventions will have different impacts that will vary based upon the local context and magnitude of unmet need. In addition, the time horizon to see an impact from abatement efforts varies. Some investments, such as those for naloxone or treatment expansion, may produce an immediate impact on the Community, whereas others may have medium-term (e.g., drug courts, transitional housing) or long-term (e.g., child and family services) effects that may be no less important to the Community's ultimate recovery.
227. Third, the return on investments from some programs can be quite profound. In other words, improving treatment uptake and use for OUD is not just the right clinical thing to do, it also makes good economic sense, in part because OUD has so many direct and indirect costs.<sup>z</sup> For example, Ettner and colleagues<sup>633</sup> and Gerstein and colleagues,<sup>634</sup> have estimated at least a 7:1 return on investment when examining the economic benefits and costs of the treatment of alcohol and drug disorders using

---

<sup>z</sup> Many of these costs are discussed more fully in the expert report provided by Dr. Thomas McGuire.

## CONFIDENTIAL

California treatment data.<sup>aa</sup> Similarly, an analysis of a naloxone distribution program in North Carolina, as described in Paragraph #137 estimated that, on average, for every dollar spent on the program, there was \$2,742 of benefit due to opioid overdose deaths avoided.<sup>635</sup> In a separate decision analysis from the University of San Francisco, investigators estimated that providing naloxone to heroin users is robustly cost-effective, and possibly cost-saving, with one overdose death prevented for every 164 naloxone kits distributed.<sup>636</sup> Yet other work has examined potential savings associated with investments in harm reduction such as syringe service programs (SSPs), suggesting that for every dollar invested in SSPs, at least six dollars are saved due to HIV prevention alone.<sup>637</sup> A separate cost-effectiveness analysis of an SSP in New York City estimated that the program would result in a baseline one year savings to the government of \$1,300 to \$3,000 per client.<sup>638</sup>

228. Fourth, as noted in Paragraph #16, “the cost of doing nothing is not nothing”.<sup>639</sup> The opioid epidemic has worsened over more than two decades, both nationally and particularly in the Cabell-Huntington Community, and for a long time, was hidden in plain sight. Fortunately, there is acknowledgement of the devastation that opioids have caused for many communities, and there has been incredible mobilization in Cabell County and the City of Huntington. In addition, a great deal of scientific effort has been expended to develop an evidence base regarding the approaches noted herein. This overwhelming evidence explains the strong scientific consensus regarding the importance of the abatement remedies proposed.

229. While further extrapolation is required to estimate the combined, community-level impact of interventions I propose, I believe that they can reduce cumulative opioid overdoses and opioid-related harms by 50% over fifteen years.<sup>640</sup> This estimate is based on models that we and others<sup>641,642,643,644</sup> have developed, as well as review and synthesis of additional assessments of many of the interventions proposed herein, ranging from Health Professional Education (Section 1A) to Harm Reduction Interventions (Section 1E) to Naloxone Distribution and Training (Section 2E). The Redress Model takes into account the fact that, if the abatement plan is effective in abating the epidemic, as the evidence that I provide suggests it will be, considerably fewer resources will be needed in later years of the plan than during the first few years.

---

<sup>aa</sup> These analyses were not limited to those with opioid use disorder. While the reports nevertheless suggest the value of OUD treatment, including MOUD, there is also a need for further research focused exclusively on OUD treatments rather than broader SUDs.

## VIII. POTENTIAL OBJECTIONS TO PROPOSED ABATEMENT REMEDIES

There is remarkable consensus among public health experts regarding the abatement remedies outlined above. Nevertheless, some might object to one or more of the proposed remedies on a number of grounds.

230. Enough is already being done. One argument is that there is already an enormous amount of effort being devoted to the epidemic in the Community, as well as some signs that things are “turning around” locally. For example, prescription opioid volume continues to decline in Cabell County, overdoses were generally lower between September 2019 and April 2020 than previous years (Paragraph #29), and there are several effective programs for pregnant women and new mothers. While such arguments might have some appeal, they overlook the complexity of the epidemic, continued evidence of grave harms in the Community and the fact that investments made thus far pale in comparison to the epidemic’s societal costs. For example, despite declines in opioid sales, prescribing rates remain far above pre-epidemic baselines. Similarly, the rate of overdoses in Cabell County increased 200-300% in May 2020, and there is no indication that supply of illicit fentanyl has been stopped. The Cabell Drug Court and PROACT treatment center, two effective and evidence-based programs within the Community, are at capacity and cannot accept eligible clients.<sup>645</sup> As noted throughout my report, there are vast gaps that remain in the treatment system, and many of the most damaging consequences of the epidemic, such as its effects on children, families and those with active addiction or a history of OUD, will endure for generations.
231. There may be unintended consequences. Concern has been raised regarding potential unintended consequences of efforts to address the epidemic, especially “supply-sided” interventions such as clinical guidelines that may reduce the volume of opioids used in clinical practice (Section 1A).<sup>646,647</sup> It is theoretically possible that reductions in opioid prescribing may pose a burden for individuals in whom opioids are clinically appropriate, and thus the importance of multifaceted approaches to diminish this likelihood, including: investments in pain research; continued evidence generation and synthesis such as the activities undertaken by the CDC and professional societies, provider and patient education; insurance coverage and benefit redesign; and surveillance. Similarly, while arguments that constraining opioid oversupply “just pushes people to heroin” are over simplified,<sup>bb</sup> such concerns underscore the urgency of expansions in the treatment system to accompany supply-sided interventions reducing the flow of people from the general population into OUD.
232. We shouldn’t reward bad behavior. Variations on this argument include that people who are “running into trouble” should know better, or more abhorrently still, “three strikes and you are out”.<sup>cc</sup> These approaches to managing the opioid epidemic blame the victims and reflect classic stigmatizing language grounded in erroneous beliefs regarding the nature of addiction. No one chooses addiction any more than one chooses to have heart failure or multiple sclerosis.<sup>648</sup> Such language overlooks this and conflates abuse, which is a behavior, with addiction, which is a disease. It also is hard to reconcile such views with the fact that individuals with OUD or non-medical opioid use commonly report receiving opioids from the health care system.<sup>649,650,651</sup> It is precisely this type of language, and persistent stereotypes regarding the nature of opioid dependence, misuse and addiction, that have slowed progress in addressing the epidemic over two decades, and that should be aggressively rebutted head-on as part of campaigns to educate the general public and health care providers regarding the

<sup>bb</sup> There is not a zero-sum game between reducing prescription opioid oversupply and increasing heroin use. For example, see Compton WM, Jones Compton WM, Jones CM, Baldwin GT. Relationship Between Nonmedical Prescription-Opioid Use and Heroin Use. *New England Journal of Medicine*. 2016;374:154-63.

<sup>cc</sup> Such an argument was proposed by a city council member in a small town in Ohio, who argued that the use of Emergency Medical Services should be restricted among people who utilize such services for multiple opioid overdoses.

## CONFIDENTIAL

nature of the epidemic.

233. MOUD isn't that effective and it is diverted. In fact, there is a substantial body of evidence regarding the effectiveness of treatments such as buprenorphine and methadone in retaining people in treatment, reducing illicit drug use, decreasing criminal activity and preventing overdose death.<sup>652,653</sup> It is true that relapse among people with OUD is not uncommon, just as is the case with cancer, depression and many other chronic diseases. Similarly, while treatment failures occur with MOUD, the empiric response rate to many medicines, such as antidepressants, is low; this does not obviate their potential clinical and public health value. An overwhelming amount of evidence indicates that MOUD can significantly decrease mortality and other undesirable outcomes, a reduction that could be seldom matched by treatments for many other chronic diseases. Nonetheless, diversion of MOUD remains a concern, and underscores the importance of greater, rather than fewer, investments in the treatment system to enhance the comprehensiveness and continuity of individuals seeking care for addiction.<sup>dd</sup>
234. The problem isn't prescription opioids, it is other drugs (e.g., cocaine, alcohol, methamphetamines).<sup>ee</sup> The increasing presence of fentanyl within the non-opioid supply chain, as well as sharp increases in overdose deaths from stimulants such as cocaine and methamphetamine during the past few years, are the source of increasing concern on the part of clinicians, policy-makers, public health officials and the general public. It is true that many people who overdose from opioids have other drugs in their system at the time of death, that other SUDs are common among those with OUD, and that there are shortcomings in our clinical and public health infrastructure to address non-opioid SUDs. While these sources of morbidity and mortality require a different public health response than one geared towards opioids alone, they do not diminish the importance of the efforts discussed herein addressing the historic oversupply of opioids and well delineated harms that have resulted from such.
235. Cost-benefit of specific approaches is not clear. The Proposed Abatement Plan discussed herein reflects evidence-based and evidence-informed approaches to address the epidemic in the Community. Many approaches,<sup>654,655,656,657</sup> but not all,<sup>658</sup> have been subject to cost-benefit analysis in a variety of contexts. In some cases, the cost-benefit or cost-effectiveness of proposed abatement measures has been assessed specifically in the context of a single state, such as assessments of adolescent screening interventions performed by the Washington State Institute for Public Policy.<sup>659</sup> Nevertheless, as I note elsewhere, there is a remarkable degree of consensus regarding what abatement strategies are needed, reflecting an acknowledgement of the urgency of the epidemic both nationally and in the Community, the large body of scientific information underpinning abatement remedies and an awareness of the enormous costs of inaction.
236. It is unclear what success looks like. Some might argue that the success of abatement remedies is ill defined, and that without such clear benchmarks, there is no way to discern whether or not specific remedies are working, or worth it. Fortunately, there is clear consensus regarding how to abate the opioid epidemic, and this is because of the enormous body of scientific evidence underlying it. Plans must be tailored to the Community, and measurement of process and outcomes is important so as to gauge success. We are now two decades or more into the opioid epidemic, and it may take us just as long to get out of the opioid epidemic as it has to get into it. While there may be different ways of defining success, one measure would be to reduce opioid-related morbidity and mortality by 50% over

---

<sup>dd</sup> The use of directly observed therapy (DOT) to deliver methadone, and provider administered buprenorphine formulations, are both additional means of reducing potential MOUD diversion.

<sup>ee</sup> Yet an additional objection, that the primary problem is one of heroin and illicit fentanyl, not prescription opioids, is addressed in Paragraph #23.

CONFIDENTIAL

fifteen years (Paragraph #229), although an even more ambitious measure would be to restore pre-epidemic levels of opioid supply and rates of addiction and overdose deaths.



## IX. CONCLUSIONS

237. The opioid epidemic is the worst drug epidemic in our nation's history, and it has been driven by large increases in the oversupply of prescription opioids for the treatment of pain. The Community has experienced first-hand morbidity and mortality attributable to the epidemic far greater than most areas of the country, whether with respect to rates of OUD, non-fatal and fatal overdose, infants born with neonatal abstinence syndrome, and children placed in foster care. These challenges make the substantial investments that the Community has made to address the local epidemic all the more laudable. Fortunately, while all measures of the epidemic, from prescription opioid sales to rates of addiction to overdose deaths, remain at alarming levels, there is increasing recognition of the magnitude of the harms that have accrued, and remarkable scientific and public health consensus regarding what needs to be done to abate the epidemic. The abatement remedies described herein represent evidence-based and evidence-informed approaches that many communities have already begun to undertake with varying degrees of coordination and scale, and which can be further applied to the Cabell-Huntington Community, too. They are highly aligned with the three principles described at the outset of this report: (1) informing action with evidence; (2) intervening comprehensively; and (3) promoting safe and appropriate opioid use. As the citizens and leaders of Cabell County and the City of Huntington know all too well, there is not a moment to lose.

CONFIDENTIAL

Pursuant to 28 U.S.C. S 1746, I declare under penalty of perjury that the foregoing is true and correct.

August 3, 2020

*G Caleb Alexander*

---

G. Caleb Alexander, MD, MS  
Baltimore, MD

- 
- <sup>1</sup> Strom BL, Kimmel SE, Hennessy S. Textbook of Pharmacoepidemiology. John Wiley & Sons. 2013.
- <sup>2</sup> Chang HY, Daubresse M, Kruszewski SP, Alexander GC. Prevalence and Treatment of Pain in EDs in the United States, 2000 to 2010. *American Journal of Emergency Medicine*. 2014;32:421-431.
- <sup>3</sup> Daubresse M, Chang H-Y, Yu Y, Viswanathan S, Shah ND, Stafford RS, Kruszewski SP, Alexander GC. Ambulatory Diagnosis and Treatment of Nonmalignant Pain in the United States, 2000-2010. *Medical Care*. 2013;51:870-878.
- <sup>4</sup> Lyapustina T, Rutkow L, Chang HY, Daubresse M, Ramji AF, Faul M, Stuart EA, Alexander GC. Effect of a "Pill mill" Law on Opioid Prescribing and Utilization: The Case of Texas. *Drug and Alcohol Dependence*. 2016;159:190-197.
- <sup>5</sup> McGinty B, Stuart EA, Alexander GC, Barry CL, Bicket MC, Rutkow L. Protocol: Mixed-Methods Study to Evaluate Implementation, Enforcement, and Outcomes of U.S. State Laws Intended to Curb High-Risk Opioid Prescribing. *Implementation Science*. 2018;13:37.
- <sup>6</sup> Rutkow L, Smith K, Lai A, Vernick J, Davis C, Alexander GC. Prescription Drug Monitoring Program Design and Function: A Qualitative Analysis. *Drug and Alcohol Dependence*. 2017;180:395-400.
- <sup>7</sup> Chang HY, Lyapustina T, Rutkow L, Daubresse M, Richey M, Faul M, Stuart EA, Alexander GC. Impact of Prescription Drug Monitoring Programs and Pill Mill Laws on High-Risk Opioid Prescribers: A Comparative Interrupted Time Series Analysis. *Drug and Alcohol Dependence*. 2016;165:1-8.
- <sup>8</sup> Moyo P, Griffin BA, Onukwugha E, Palumbo F, Harrington D, Alexander GC, Simoni-Wastila L. Impact of Prescription Drug Monitoring Programs (PDMPs) on Opioid Utilization Among Medicare Beneficiaries in 10 US States. *Addiction*. 2017;112:1784-1796.
- <sup>9</sup> McGinty B, Stuart EA, Alexander GC, Barry CL, Bicket MC, Rutkow L. Protocol: Mixed-Methods Study to Evaluate Implementation, Enforcement, and Outcomes of U.S. State Laws Intended to Curb High-Risk Opioid Prescribing. *Implementation Science*. 2018;13:37.
- <sup>10</sup> Rutkow L, Chang HY, Daubresse M, Webster D, Stuart E, Alexander GC. Effect of Florida's Prescription Drug Monitoring Program and Pill Mill Laws on Opioid Prescribing and Use. *JAMA Internal Medicine*. 2015;175:1642-1649.
- <sup>11</sup> Rutkow L, Turner L, Lucas E, Hwang C, Alexander GC. Most Primary Care Physicians Are Aware of Prescription Drug Monitoring Programs, but Many Find the Data Difficult to Access. *Health Affairs*. 2015;34:484-492.
- <sup>12</sup> Moyo P, Griffin BA, Onukwugha E, Palumbo F, Harrington D, Alexander GC, Simoni-Wastila L. Prescription Drug Monitoring Programs: Assessing the Association Between "Best Practices" and Opioid Use by Disabled and Older Adults. *Health Services Research*. 2019;54:1045-54.
- <sup>13</sup> Rollman JE, Heyward J, Olson L, Lurie P, Sharfstein J, Alexander GC. Assessment of the FDA Risk Evaluation and Mitigation Strategy for Transmucosal Immediate-Release Fentanyl Products. *JAMA*. 2019;321:676-685.
- <sup>14</sup> Heyward J, Olson L, Sharfstein J, Stuart EA, Lurie P, Alexander GC. Oversight of Extended Release/Long Acting (ER/LA) Opioid Prescribing by the U.S. Food and Drug Administration: A Narrative Review. *JAMA Internal Medicine*. 2020;180:301-9.

- <sup>15</sup> Heyward J, Olson L, Sharfstein J, Stuart EA, Lurie P, Alexander GC. Oversight of Extended Release/Long Acting (ER/LA) Opioid Prescribing by the U.S. Food and Drug Administration: A Narrative Review. *JAMA Internal Medicine*. 2020;180:301-9.
- <sup>16</sup> Guadamuz J, Qato DM, Alexander GC. Use of Risk Evaluation and Mitigation Strategies (REMS) by the U.S. Food and Drug Administration (FDA), 2008-2019. *JAMA*. Publication pending.
- <sup>17</sup> Stone EM, Rutkow L, Bicket M, Barry CL, Alexander GC, McGinty EE. Implementation and Enforcement of State Opioid Prescribing Laws. *Drug and Alcohol Dependence*. 2020;213:108107.
- <sup>18</sup> Heyward J, Jones CM, Compton WM, Lin DH, Losby JL, Murimi IB, Baldwin GT, Ballreich JM, Thomas D, Bicket M, Porter L, Tierce JC, Alexander GC. Coverage of Nonpharmacologic Treatments for Low Back Pain Among US Public and Private Insurers. *JAMA Network Open*. 2018;1:e183044.
- <sup>19</sup> Lin DH, Jones CM, Compton WM, Heyward J, Losby JL, Murimi IB, Baldwin GT, Ballreich JM, Thomas D, Bicket M, Porter L, Tierce JC, Alexander GC. Prescription Drug Coverage for Treatment of Low Back Pain Among U.S. Medicaid, Medicare Advantage and Commercial Insurers. *JAMA Network Open*. 2018;1:e180235.
- <sup>20</sup> Daubresse M, Gleason PP, Peng Y, Shah N, Ritter ST, Alexander GC. Impact of a Drug Utilization Review Program on High-Risk Use of Prescription Controlled Substances. *Pharmacoepidemiology and Drug Safety*. 2014;23:419-427.
- <sup>21</sup> Saloner B, Levin J, Chang HY, Jones C, Alexander GC. Changes in Buprenorphine-Naloxone and Opioid Pain Reliever Prescriptions After the Affordable Care Act Medicaid Expansion. *JAMA Network Open*. 2018;1:e181588.
- <sup>22</sup> Rao T, Kiptanui Z, Dowell P, Triebwasser C, Alexander GC, Harris I. Formulary Restrictions for Opioid Alternatives Increase Opioid Prescribing Among Medicare Beneficiaries. *JAMA Network Open*. 2020;3:e200274.
- <sup>23</sup> Rutkow L, Vernick JS, Alexander GC. More States Should Regulate Pain Management Clinics to Promote Public Health. *American Journal Public Health*. 2017;107:240-243.
- <sup>24</sup> Alexander GC, Kruszewski SP, Webster DW. Rethinking Opioid Prescribing to Protect Patient Safety and Public Health. *JAMA*. 2012;308:1865-1866.
- <sup>25</sup> Kolodny A, Courtwright DT, Hwang CS, Kreiner P, Eadie JL, Clark TW, Alexander GC. The Prescription Opioid and Heroin Crisis: A Public Health Approach to an Epidemic of Addiction. *Annual Review of Public Health*. 2015;36:559-574.
- <sup>26</sup> Alexander GC, Stoller KB, Haffajee RL, Saloner B. An Epidemic in the Midst of a Pandemic: Opioid Use Disorder and COVID-19. *Annals of Internal Medicine*. 2020;173:57-58.
- <sup>27</sup> Guadamuz JS, Alexander GC, Chaudhri T, Trotzky-Sirr R, Qato DM. Availability and Cost of Naloxone Nasal Spray at Pharmacies in Philadelphia, Pennsylvania, 2017. *JAMA Network Open*. 2019;2:e195388.
- <sup>28</sup> Seamans MJ, Carey TS, Westreich DJ, Cole SR, Wheeler SB, Alexander GC, Brookhart MA. Association of Household Opioid Availability and Prescription Opioid Initiation Among Household Members. *JAMA Internal Medicine*. 2018;178:102-109.
- <sup>29</sup> Hwang C, Chang HY, Alexander GC. Impact of Abuse-Deterrent OxyContin on Prescription Opioid Utilization. *Pharmacoepidemiology and Drug Safety*. 2015;24:197-204.
- <sup>30</sup> Hwang CS, Turner LW, Kruszewski SP, Kolodny A, Alexander GC. Primary Care Physicians' Knowledge and Attitudes Regarding Prescription Opioid Abuse and Diversion. *Clinical Journal of Pain*. 2016;32:279-284.

- <sup>31</sup> Daubresse M, Saloner B, Pollack HA, Alexander GC. Non-Buprenorphine Opioid Utilization Among Patients Using Buprenorphine. *Addiction*. 2017;112:1045-1053.
- <sup>32</sup> Saloner B, Daubresse M, Alexander GC. Patterns of Buprenorphine-Naloxone Treatment for Opioid Use Disorder in a Multistate Population. *Medical Care*. 2017;55:669-676.
- <sup>33</sup> Chang HY, Daubresse M, Saloner B, Alexander GC. Chronic Disease Medication Adherence After Initiation of Buprenorphine for Opioid Use Disorder. *Medical Care*. 2019;57:667-672.
- <sup>34</sup> Chang HY, Kharrazi H, Bodycombe D, Weiner J, Alexander GC. Healthcare Costs and Utilization Associated with High-Risk Prescription Opioid Use: A Retrospective Cohort Study. *BMC Medicine*. 2018;16:69.
- <sup>35</sup> Canan C, Polinski JM, Alexander GC, Kowal MK, Brennan TA, Shrank WH. Automatable Algorithms to Identify Nonmedical Opioid Use Using Electronic Data: A Systematic Review. *Journal of the American Medical Informatics Association*. 2017;24:1204-1210.
- <sup>36</sup> Chang HY, Murimi IB, Jones CM, Alexander GC. Relationship Between High-Risk Patients Receiving Prescription Opioids and High-Volume Opioid Prescribers. *Addiction*. 2018;113:677-686.
- <sup>37</sup> Canan C, Chander G, Monroe A, Gebo K, Moore R, Agwu A, Alexander GC, Lau B. High-Risk Prescription Opioid Use Among People Living With HIV. *Journal of Acquired Immune Deficiency Syndromes*. 2018;78:283-290.
- <sup>38</sup> Canan C, Alexander GC, Moore R, Murimi I, Chander G, Lau B. Medicaid Trends in Opioid and Non-opioid Use by HIV Status. *Drug and Alcohol Dependence*. 2019;197:141-148.
- <sup>39</sup> Daubresse M, Alexander GC, Crews DC, Segev DL, McAdams-DeMarco MA. Trends in Opioid Prescribing Among Hemodialysis Patients, 2007-2014. *American Journal of Nephrology*. 2019;49:20-31.
- <sup>40</sup> Novick TK, Surapaneni A, Shin JI, Ballew SH, Alexander GC, Inker LA, Chang AR, Grams ME. Prevalence of Opioid, Gabapentinoid, and NSAID Use in CKD. *Clinical Journal of American Society of Nephrology*. 2018;13:1886-1888.
- <sup>41</sup> Novick TK, Surapaneni A, Shin JI, Alexander GC, Inker LA, Wright EA, Chang AR, Grams ME. Associations of Opioid Prescriptions with Death and Hospitalization Across the Spectrum of Estimated GFR. *Clinical Journal of the American Society of Nephrology*. 2019;14:1581-1589.
- <sup>42</sup> Sibia US, Mandelblatt AE, Alexander GC, King PJ, MacDonald J. Opioid Prescriptions After Total Joint Arthroplasty. *Journal of Surgical Orthopaedic Advances*. 2018;27:231-236.
- <sup>43</sup> Bicket MC, White E, Pronovost PJ, Wu CL, Yaster M, Alexander GC. Opioid Oversupply After Joint and Spine Surgery: A Prospective Cohort Study. *Anesthesia and Analgesia*. 2019;128:358-364.
- <sup>44</sup> Bicket MC, Brat G, Hutfless S, Wu C, Nesbit S, Alexander GC. Optimizing Opioid Prescribing and Pain Treatment for Surgery: A Conceptual Framework. *American Journal of Health-System Pharmacy*. 2019;76:1403-1412.
- <sup>45</sup> Bicket MC, Murimi I, Mansour O, Wu CL, Alexander GC. Association of New Opioid Continuation with Surgical Specialty and Type in the United States. *American Journal of Surgery*. 2019; 218:818-827
- <sup>46</sup> Bicket MC Long J, Pronovost PJ, Alexander GC, Wu CL. Prescription Opioid Analgesics Commonly Unused After Surgery: A Systematic Review. *JAMA Surgery*. 2017;152:1066-1071.

- <sup>47</sup> Lin D, Lucas E, Murimi IB, Kolodny A, Alexander GC. Financial Conflicts of Interest and Centers for Disease Control and Prevention's 2016 Guideline for Prescribing Opioids for Chronic Pain. *JAMA Internal Medicine*. 2017;177:427-428.
- <sup>48</sup> Moynihan R, Bero L. Toward a Healthier Patient Voice: More Independence, Less Industry Funding. *JAMA Internal Medicine*. 2017;177:350-351.
- <sup>49</sup> Governor's Council on Substance Abuse Prevention and Treatment. West Virginia 2020-2022 Substance Use Response Plan. [https://www.wvlegislature.gov/legisdocs/reports/agency/H01\\_FY\\_2020\\_14683.pdf](https://www.wvlegislature.gov/legisdocs/reports/agency/H01_FY_2020_14683.pdf). Published 2020. Accessed August 1, 2020.
- <sup>50</sup> Division of Addiction Sciences, Marshall University Joan C. Edwards School of Medicine. City of Solutions. <http://philanthropywv.org/content/uploads/2019/11/COS-Guidebook-Finalized-as-of-9-26-19.pdf>. Published 2019. Accessed August 1, 2020.
- <sup>51</sup> Mayor's Office of Drug Control Policy, City of Huntington. Strategic Plan. <http://media.graytvinc.com/documents/STRATEGIC+PLAN+FINAL+Huntington.pdf>. Published 2015. Accessed August 1, 2020.
- <sup>52</sup> Mayor's Office of Drug Control Policy, City of Huntington. Two-Year Strategic Plan for Addressing the Opioid Crisis in the City of Huntington/Cabell and Wayne Counties, West Virginia. [https://www.opioidlibrary.org/wp-content/uploads/2019/08/MODCP\\_two\\_year\\_plan\\_May\\_2017.pdf](https://www.opioidlibrary.org/wp-content/uploads/2019/08/MODCP_two_year_plan_May_2017.pdf). Published 2017. Accessed August 1, 2020.
- <sup>53</sup> Division of Addiction Sciences, Marshall University Joan C. Edwards School of Medicine. Resiliency Plan. [https://jcesom.marshall.edu/media/58477/2020\\_cabell-county-resiliency-plan\\_final.pdf](https://jcesom.marshall.edu/media/58477/2020_cabell-county-resiliency-plan_final.pdf). Published 2020. Accessed August 1, 2020.
- <sup>54</sup> Hill AB. The Environment and Disease: Association or Causation? *Journal of the Royal Society of Medicine*. 1965;58:295-300.
- <sup>55</sup> Murad MH, Asi N, Alsawas M, Alahdab F. New Evidence Pyramid. *BMJ Evidence-Based Medicine*. 2016;21:125-127.
- <sup>56</sup> Katz J. How a Police Chief, a Governor and a Sociologist Would Spend \$100 Billion to Solve the Opioid Crisis. <https://www.nytimes.com/interactive/2018/02/14/upshot/opioid-crisis-solutions.html>. Published 2018. Accessed August 1, 2020.
- <sup>57</sup> Delaney, J. *The Right Answer: How We Can Unify Our Divided Nation*. Henry Holt and Company, Macmillan Publishing Group. New York, New York, 2018.
- <sup>58</sup> Homer J, Wakeland W. A Dynamic Model of the Opioid Drug Epidemic With Implications for Policy. *The American Journal of Drug and Alcohol Abuse*. 2020;7:1-1.
- <sup>59</sup> U.S. Food and Drug Administration. FDA Analysis of Long-Term Trends in Prescription Opioid Analgesic Products: Quantity, Sales, and Price Trends. <https://www.fda.gov/downloads/AboutFDA/ReportsManualsForms/Reports/UCM598899.pdf>. Published 2018. Accessed August 1, 2020.
- <sup>60</sup> Centers for Disease Control and Prevention. Vital Signs: Overdoses of Prescription Opioid Pain Relievers - United States, 1999-2008, Morbidity and Mortality Weekly Report. 2011;60:1487.
- <sup>61</sup> Centers for Disease Control and Prevention. Understanding the Epidemic. <https://www.cdc.gov/drugoverdose/epidemic/index.html>. Accessed August 1, 2020.

- <sup>62</sup> Pirani F. Opioids Now Kill More Americans than Guns or Breast Cancer, CDC Says. <https://www.ajc.com/news/health-med-fit-science/opioids-now-kill-more-americans-than-guns-breast-cancer-cdc-says/DUx1KS33P4sbyzg9T9rrN>. Published 2017. Accessed August 1, 2020.
- <sup>63</sup> Ho Jessica Y, Hendi Arun S. Recent Trends in Life Expectancy Across High Income Countries: Retrospective Observational Study. *BMJ*. 2018;362:k2562
- <sup>64</sup> Drash W, Blau M. In America's Drug Death Capital: How Heroin Is Scarring the Next Generation. <https://www.cnn.com/2016/09/16/health/huntington-heroin/index.html>. Published 2016. Accessed August 1, 2020.
- <sup>65</sup> Jacobs H. Here's Why the Opioid Epidemic Is So Bad in West Virginia — The State With the Highest Overdose Rate in the US. <https://www.businessinsider.com/why-the-opioid-epidemic-is-so-bad-in-west-virginia-2016-4>. Published 2016. Accessed August 1, 2020.
- <sup>66</sup> Centers for Disease Control and Prevention. U.S. County Prescribing Rates, 2012. <https://www.cdc.gov/drugoverdose/maps/rxcounty2012.html>. Accessed August 1, 2020.
- <sup>67</sup> Centers for Disease Control and Prevention. Prescribing Practices. <https://www.cdc.gov/drugoverdose/data/prescribing/prescribing-practices.html>. Accessed August 1, 2020.
- <sup>68</sup> U.S. Drug Enforcement Agency. DEA 360 Strategy Reach and Impact Report: Charleston. [https://www.dea.gov/sites/default/files/2019-09/DEA%20360%20Strategy%20Charleston%20Report%20\(Final-508\)%20\(Reduced%20File%20Size\).pdf](https://www.dea.gov/sites/default/files/2019-09/DEA%20360%20Strategy%20Charleston%20Report%20(Final-508)%20(Reduced%20File%20Size).pdf). Published 2018. Accessed August 1, 2020.
- <sup>69</sup> Centers for Disease Control and Prevention. U.S. County Prescribing Rates, 2018. <https://www.cdc.gov/drugoverdose/maps/rxcounty2018.html>. Accessed August 1, 2020.
- <sup>70</sup> Monnat SM, Peters DJ, Berg MT, Hochstetler A. Using Census Data to Understand County-Level Differences in Overall Drug Mortality and Opioid-Related Mortality by Opioid Type. *American Journal of Public Health*. 2019;109:1084-91.
- <sup>71</sup> Substance Abuse and Mental Health Services Administration. Prescription Opioid Misuse in West Virginia. <https://helpandhopewv.org/docs/4.%20Prescription%20Opioid%20Misuse%20in%20West%20Virginia.pdf>. Accessed August 1, 2020.
- <sup>72</sup> Substance Abuse and Mental Health Services Administration. Prescription Opioid Misuse in West Virginia. <https://helpandhopewv.org/docs/4.%20Prescription%20Opioid%20Misuse%20in%20West%20Virginia.pdf>. Accessed August 1, 2020.
- <sup>73</sup> Substance Abuse and Mental Health Services Administration. Prescription Opioid Misuse in West Virginia. <https://helpandhopewv.org/docs/4.%20Prescription%20Opioid%20Misuse%20in%20West%20Virginia.pdf>. Accessed August 1, 2020.
- <sup>74</sup> Stuck T. 26 Overdoses Reported Monday Evening. [https://www.herald-dispatch.com/news/overdoses-reported-monday-evening/article\\_81990238-4a74-5431-9420-76e0f35c5cbf.html](https://www.herald-dispatch.com/news/overdoses-reported-monday-evening/article_81990238-4a74-5431-9420-76e0f35c5cbf.html). Published 2016. Accessed August 1, 2020.
- <sup>75</sup> Great Rivers Regional System for Addiction Care, Cabell County. Prescription Opioid and Heroin Awareness Toolkit: A Prevention Guide. <https://www.marshallhealth.org/media/2085/cabell-county-prescription-opioid-and-heroin-awareness-toolkit.pdf>. Accessed August 1, 2020.
- <sup>76</sup> Johns Hopkins Bloomberg School of Public Health. Rural Community in Crisis. <https://americanhealth.jhu.edu/RuralOpioidsCount>. Accessed August 1, 2020.

- <sup>77</sup> West Virginia Department of Human & Health Resources. Hospital Emergency Room Dashboard Related to Overdoses. <https://dhhr.wv.gov/office-of-drug-control-policy/datadashboard/Pages/Hospital-Emergency-Room-Dashboard-Related-to-Overdoses.aspx>. Accessed August 1, 2020.
- <sup>78</sup> Kosten TR, George TP. The Neurobiology of Opioid Dependence: Implications for Treatment. *Science & Practice Perspectives*. 2002;13:13-20.
- <sup>79</sup> Compton WM, Jones CM, Baldwin GT. Relationship between Nonmedical Prescription-Opioid Use and Heroin Use. *The New England Journal of Medicine*. 2016;374:154-63.
- <sup>80</sup> Jones CM. Heroin Use and Heroin Use Risk Behaviors Among Nonmedical Users of Prescription Opioid Pain Relievers—United States, 2002–2004 and 2008–2010. *Drug and Alcohol Dependence*. 2013;132:95-100.
- <sup>81</sup> Allen ST, O'Rourke A, White RH, Schneider KE, Kilkenny M, Sherman SG. Estimating the Number of People Who Inject Drugs in a Rural County in Appalachia. *American Journal of Public Health*. 2019; 109:445–450.
- <sup>82</sup> U.S. Drug Enforcement Agency. DEA 360 Strategy Reach and Impact Report: Charleston. [https://www.dea.gov/sites/default/files/2019-09/DEA%20360%20Strategy%20Charleston%20Report%20\(Final-508\)%20\(Reduced%20File%20Size\).pdf](https://www.dea.gov/sites/default/files/2019-09/DEA%20360%20Strategy%20Charleston%20Report%20(Final-508)%20(Reduced%20File%20Size).pdf). Published 2018. Accessed August 1, 2020.
- <sup>83</sup> Deposition of Todd Davies, Assistant Professor, Marshall University, in this litigation, July 28, 2020, page 57.
- <sup>84</sup> Stabler ME, Long DL, Chertok IR, Giacobbi Jr PR, Pilkerton C, Lander LR. Neonatal Abstinence Syndrome in West Virginia Substate Regions, 2007–2013. *The Journal of Rural Health*. 2017; 33:92–101.
- <sup>85</sup> West Virginia Department of Health and Human Resources. Percent of Neonatal Abstinence Syndrome (NAS). <https://dhhr.wv.gov/bph/Documents/ODCP%20Reports%202017/NAS%20DATA%202017.pdf>. Published 2017. Accessed August 1, 2020.
- <sup>86</sup> MOMS Program: Maternal Opiate Medical Support. HUNT\_00092810
- <sup>87</sup> Umer A, Loudin S, Maxwell S, Lilly C, Stabler ME, Cottrell L, Hamilton C, Breyel J, Mullins C, John C. Capturing the Statewide Incidence of Neonatal Abstinence Syndrome in Real Time: The West Virginia Experience. *Pediatric Research*. 2019;85:607-11.
- <sup>88</sup> Mullins C. A Public Health Emergency: West Virginia's Efforts to Curb the Opioid Crisis (Testimony). <https://docs.house.gov/meetings/IF/IF02/20200114/110367/HHRG-116-IF02-Wstate-MullinsC-20200114.pdf>. Published 2020. Accessed August 1, 2020.
- <sup>89</sup> Administration for Children & Families. Trends in Foster Care and Adoption. <https://www.acf.hhs.gov/cb/resource/trends-in-foster-care-and-adoption>. Accessed August 1, 2020.
- <sup>90</sup> American Academy of Pediatrics. America's Opioid Crisis: The Unseen Impact on West Virginia Children. [https://www.aap.org/en-us/advocacy-and-policy/federal-advocacy/Documents/Opioid-StateFactsheets/opioid\\_fs\\_west\\_virginia.pdf](https://www.aap.org/en-us/advocacy-and-policy/federal-advocacy/Documents/Opioid-StateFactsheets/opioid_fs_west_virginia.pdf). Accessed August 1, 2020.
- <sup>91</sup> Great Rivers Regional System for Addiction Care, Cabell County. Prescription Opioid and Heroin Awareness Toolkit: A Prevention Guide. <https://www.marshallhealth.org/media/2085/cabell-county-prescription-opioid-and-heroin-awareness-toolkit.pdf>. Accessed August 1, 2020.
- <sup>92</sup> Seamans MJ, Carey TS, Westreich DJ, Cole SR, Wheeler SB, Alexander GC, Pate V, Brookhart MA. Association of Household Opioid Availability and Prescription Opioid Initiation Among Household Members. *JAMA Internal Medicine*. 2018; 178:102–9.



<sup>93</sup> Nguyen AP, Glanz JM, Narwaney KJ, Binswanger IA. Association of Opioids Prescribed to Family Members With Opioid Overdose Among Adolescents and Young Adults. *JAMA Network Open*. 2020; 3:e201018.

<sup>94</sup> West Virginia Department of Human & Health Resources. Hospital Emergency Room Dashboard Related to Overdoses. <https://dhhr.wv.gov/office-of-drug-control-policy/datadashboard/Pages/Hospital-Emergency-Room-Dashboard-Related-to-Overdoses.aspx>. Accessed August 1, 2020.

<sup>95</sup> Division of Addiction Sciences, Marshall University Joan C. Edwards School of Medicine. City of Solutions. <http://philanthropywv.org/content/uploads/2019/11/COS-Guidebook-Finalized-as-of-9-26-19.pdf>. Published 2019. Accessed August 1, 2020.

<sup>96</sup> Provider Response Organization for Addiction Care & Treatment. <https://proactwv.com/about-us/history>. Accessed August 1, 2020.

<sup>97</sup> Division of Addiction Sciences, Marshall University Joan C. Edwards School of Medicine. City of Solutions. <http://philanthropywv.org/content/uploads/2019/11/COS-Guidebook-Finalized-as-of-9-26-19.pdf>. Published 2019. Accessed August 1, 2020.

<sup>98</sup> Division of Addiction Sciences, Marshall University Joan C. Edwards School of Medicine. City of Solutions. <http://philanthropywv.org/content/uploads/2019/11/COS-Guidebook-Finalized-as-of-9-26-19.pdf>. Published 2019. Accessed August 1, 2020.

<sup>99</sup> Knowledge in Developmental Steps (KIDS Clinic). <https://healthyconnectionswv.org/Programs/KIDS-Clinic.aspx>. Accessed August 1, 2020.

<sup>100</sup> Klinger G, Frankenthal D, Merlob P, Diamond G, Sirota L, Levinson-Castiel R, Linder N, Stahl B, Inbar D. Long-Term Outcome Following Selective Serotonin Reuptake Inhibitor Induced Neonatal Abstinence Syndrome. *Journal of Perinatology*. 2011;31:615-20.

<sup>101</sup> Oei JL, Melhuish E, Uebel H, Azzam N, Breen C, Burns L, Hilder L, Bajuk B, Abdel-Latif ME, Ward M, Feller JM. Neonatal Abstinence Syndrome and High School Performance. *Pediatrics*. 2017; 139:e20162651.

<sup>102</sup> Yeoh SL, Eastwood J, Wright IM, Morton R, Melhuish E, Ward M, Oei JL. Cognitive and Motor Outcomes of Children With Prenatal Opioid Exposure: A Systematic Review and Meta-Analysis. *JAMA Network Open*. 2019;2:e197025.

<sup>103</sup> West Virginia Department of Health and Human Resources. White Paper: The Need for Harm Reduction Programs in West Virginia. [https://oepps.wv.gov/harm\\_reduction/documents/training/hrp\\_white\\_paper.pdf](https://oepps.wv.gov/harm_reduction/documents/training/hrp_white_paper.pdf). Published 2017. Accessed August 1, 2020.

<sup>104</sup> Division of Addiction Sciences, Marshall University Joan C. Edwards School of Medicine. City of Solutions. <http://philanthropywv.org/content/uploads/2019/11/COS-Guidebook-Finalized-as-of-9-26-19.pdf>. Published 2019. Accessed August 1, 2020.

<sup>105</sup> West Virginia Department of Health & Human Resources. Gov. Justice - DHHR Data Suggests West Virginia Overdose Deaths Appear to be Declining. <https://dhhr.wv.gov/News/Pages/Gov.-Justice---DHHR-Data-Suggests-West-Virginia-Overdose-Deaths-Appear-to-be-Declining.aspx>. Published 2019. Accessed August 1, 2020.

<sup>106</sup> Stuck T. With Aggressive Response, HIV Cluster Growth Continues to Slow in Cabell Count. [https://www.herald-dispatch.com/news/with-aggressive-response-hiv-cluster-growth-continues-to-slow-in/article\\_36f640a4-4caf-50d2-8ed5-049d6f8e1cae.html](https://www.herald-dispatch.com/news/with-aggressive-response-hiv-cluster-growth-continues-to-slow-in/article_36f640a4-4caf-50d2-8ed5-049d6f8e1cae.html). Published 2020. Accessed August 1, 2020.

<sup>107</sup> Katz J, Goodnough A, Sanger-Katz M. In Shadow of Pandemic, U.S. Drug Overdose Deaths Resurge to Record. <https://www.nytimes.com/interactive/2020/07/15/upshot/drug-overdose-deaths.html>. Published 2020. Accessed August 1, 2020.

<sup>108</sup> Division of Addiction Sciences, Marshall University Joan C. Edwards School of Medicine. City of Solutions. <http://philanthropywv.org/content/uploads/2019/11/COS-Guidebook-Finalized-as-of-9-26-19.pdf>. Published 2019. Accessed August 1, 2020.

<sup>109</sup> Merino R, Bowden N, Katamneni S, Coustasse A. the Opioid Epidemic in West Virginia. *The Health Care Manager*. 2019;38:187–195.

<sup>110</sup> Deposition of Gordon Merry, Director, Cabell County Emergency Medical Services, in this litigation, June 29, 2020, page 40.

<sup>111</sup> West Virginia Office of Drug Control Policy. Data Dashboard. <https://dhhr.wv.gov/office-of-drug-control-policy/datadashboard/Pages/default.aspx>. Accessed August 1, 2020.

<sup>112</sup> Alexander GC, Stoller KB, Haffajee RL, Saloner B. An Epidemic in the Midst of a Pandemic: Opioid Use Disorder and COVID-19. *Annals of Internal Medicine*. 2020;173:57-58.

<sup>113</sup> Volkow ND. Collision of the COVID-19 and Addiction Epidemics. *Annals of Internal Medicine*. 2020;173:61-62.

<sup>114</sup> Becker WC, Fiellin DA. When Epidemics Collide: Coronavirus Disease 2019 (COVID-19) and the Opioid Crisis. *Annals of Internal Medicine*. 2020;173:59-60.

<sup>115</sup> Substance Abuse and Mental Health Services Administration. Opioid Treatment Program (OTP) Guidance. [www.samhsa.gov/sites/default/files/otp-guidance-20200316.pdf](http://www.samhsa.gov/sites/default/files/otp-guidance-20200316.pdf). Published 2020. Accessed August 1, 2020.

<sup>116</sup> U.S. Department of Justice, Drug Enforcement Administration. COVID\_19 Information Page: Telemedicine. [www.deadiversion.usdoj.gov/coronavirus.html](http://www.deadiversion.usdoj.gov/coronavirus.html). Accessed August 1, 2020.

<sup>117</sup> Wu Z, McGoogan JM. Characteristics of and Important Lessons From the Coronavirus Disease 2019 (COVID-19) Outbreak in China: Summary of a Report of 72 314 Cases From the Chinese Center for Disease Control and Prevention. *JAMA*. 2020;10.

<sup>118</sup> Alexander GC, Stoller KB, Haffajee RL, Saloner B. An Epidemic in the Midst of a Pandemic: Opioid Use Disorder and COVID-19. *Annals of Internal Medicine*. 2020;173:57-58.

<sup>119</sup> Christie C, Baker C, Cooper R, Kennedy PJ, Madras B, Bondi B. The President’s Commission on Combating Drug Addiction and the Opioid Crisis. [https://www.whitehouse.gov/sites/whitehouse.gov/files/images/Final\\_Report\\_Draft\\_11-1-2017.pdf](https://www.whitehouse.gov/sites/whitehouse.gov/files/images/Final_Report_Draft_11-1-2017.pdf). Published 2017. Accessed August 1, 2020.

<sup>120</sup> Alexander GC, Frattaroli S, Gielen AC. The Opioid Epidemic: From Evidence to Impact. <https://www.jhsph.edu/events/2017/americas-opioid-epidemic/report/2017-JohnsHopkins-Opioid-digital.pdf>. Published 2017. Accessed August 1, 2020.

<sup>121</sup> National Governors Association. Governors' Recommendations for Federal Action to End the Nation's Opioid Crisis. <https://www.nga.org/news/press-releases/governors-release-recommendations-for-addressing-opioid-epidemic/>. Published 2018. Accessed August 1, 2020.

<sup>122</sup> Department of Veterans Affairs, Department of Defense. VA/DoD Clinical Practice Guideline for Opioid Therapy for Chronic Pain Version 3.0.

<https://www.healthquality.va.gov/guidelines/Pain/cot/VADoDOTCPG022717.pdf>. Published 2017. Accessed August 1, 2020.

<sup>123</sup> Trust for America's Health. Pain in the Nation: The Drug, Alcohol and Suicide Crises and Need for a National Resilience Strategy. <https://www.tfah.org/report-details/pain-in-the-nation>. Accessed August 1, 2020.

<sup>124</sup> Centers for Disease Control and Prevention. Contextual Evidence Review for the CDC Guideline for Prescribing Opioids for Chronic Pain – United States, 2016. <https://stacks.cdc.gov/view/cdc/38027>. Published 2016. Accessed August 1, 2020.

<sup>125</sup> Chou R, Deyo R, Devine B, Hansen R, Sullivan S, Jarvik JG, Blazina I, Dana T, Bougatsos C, Turner J. The Effectiveness and Risks of Long-term Opioid Treatment of Chronic Pain. Evidence Report/Technology Assessment. 2014;1-219.

<sup>126</sup> National Institute on Drug Abuse (NIDA). Principles of Drug Addiction Treatment: A Research-Based Guide (Third Addition). <https://d14rmgtrwzf5a.cloudfront.net/sites/default/files/675-principles-of-drug-addiction-treatment-a-research-based-guide-third-edition.pdf>. Published 2018. Accessed August 1, 2020.

<sup>127</sup> Zhang Z, Friedmann PD, Gerstein DR. Does Retention Matter? Treatment Duration and Improvement in Drug Use. *Addiction*. 2003;98:673-84.

<sup>128</sup> U.S. Food and Drug Administration. Information about Medication Assisted Treatment. <https://www.fda.gov/Drugs/DrugSafety/InformationbyDrugClass/ucm600092.htm>. Published 2019. Accessed August 1, 2020.

<sup>129</sup> Centers for Disease Control and Prevention. New Hepatitis C Infections Nearly Tripled Over Five Years: Deadly Virus Concentrated Among Baby Boomers and Increasingly Rapidly Among New Generations of Americans. <https://www.cdc.gov/nchhstp/newsroom/2017/Hepatitis-Surveillance-Press-Release.html>. Published 2017. Accessed August 1, 2020.

<sup>130</sup> Suryaprasad AG, White JZ, Xu F, Eichler BA, Hamilton J, Patel A, Hamdounia SB, Church DR, Barton K, Fisher C, Macomber K, Stanley M, Guilfoyle SM, Sweet K, Liu S, Iqbal K, Tohme R, Sharapov U, Kupronis BA, Ward JW, Holmberg SD. Emerging Epidemic of Hepatitis C Virus Infections Among Young Nonurban Persons Who Inject Drugs in the United States, 2006-2012. *Clinical Infectious Diseases*. 2014;59:1411-9.

<sup>131</sup> Lemelin J, Hogg, W, Baskerville N. Evidence to Action: A Tailored Multifaceted Approach to Changing Family Physician Practice Patterns and Improving Preventive Care. *Canadian Medical Association Journal*. 2001;164:757-63.

<sup>132</sup> Figueiras A, Herdeiro MT, Polonia J, Gestal-Otero JJ. An Educational Intervention to Improve Physician Reporting of Adverse Drug Reactions: A Cluster Randomized Controlled Trial. *JAMA* 2006;296:1086-93.

<sup>133</sup> Avorn J, Soumerai SB, Everitt DE, Ross-Degnan D, Beers MH, Sherman D, Salem-Schatz SR, Fields D. A Randomized Trial of a Program to Reduce the Use of Psychoactive Drugs in Nursing Homes. *The New England Journal of Medicine*. 1992;327:168-173.

<sup>134</sup> Avorn J, Soumerai SB. Improving Drug-Therapy Decisions Through Educational Outreach. A Randomized Controlled Trial of Academically Based "Detailing". *The New England Journal of Medicine* 1983;308:1457-63.

<sup>135</sup> Meisenberg BR, Grover J, Campbell C, Korpon D. Assessment of Opioid Prescribing Practices Before and After Implementation of a Health System Intervention to Reduce Opioid Overprescribing. *JAMA Network Open*. 2018;1:e182908.

- <sup>136</sup> O'Brien MA, Rogers S, Jamtvedt G, Oxman AD, Odgaard-Jensen J, Kristoffersen DT, Forsetlund L, Bainbridge D, Freemantle N, Davis DA, Haynes RB, Harvey EL. Educational Outreach Visits: Effects on Professional Practice and Health Care Outcomes. The Cochrane Library. 2007;CD000409.
- <sup>137</sup> Grimshaw JM, Shirran L, Thomas R, Mowatt G, Fraser C, Bero L, Grilli R, Harvey E, Oxman A, O'Brien MA. Changing Provider Behavior: An Overview of Systematic Reviews of Interventions. Medical Care. 2001;39:II2-II45.
- <sup>138</sup> Meisenberg BR, Grover J, Campbell C, Korpon D. Assessment of Opioid Prescribing Practices Before and After Implementation of a Health System Intervention to Reduce Opioid Overprescribing. JAMA Network Open. 2018;1:e182908.
- <sup>139</sup> Losby JL, Hyatt JD, Kanter MH, Baldwin G, Matsuoka D. Safer and More Appropriate Opioid Prescribing: A Large Healthcare System's Comprehensive Approach. Journal of Evaluation in Clinical Practice. 2017;23:1173-1179.
- <sup>140</sup> Centers for Disease Control and Prevention. U.S. County Prescribing Rates, 2018. <https://www.cdc.gov/drugoverdose/maps/rxcounty2018.html>. Accessed August 1, 2020.
- <sup>141</sup> Bounthavong M, Devine EB, Christopher ML, Harvey MA, Veenstra DL, Basu A. Implementation Evaluation of Academic Detailing on Naloxone Prescribing Trends at the United States Veterans Health Administration. Health Services Research. 2019;54:1055-64.
- <sup>142</sup> Losby JL, Hyatt JD, Kanter MH, Baldwin G, Matsuoka D. Safer and More Appropriate Opioid Prescribing: A Large Healthcare System's Comprehensive Approach. Journal of Evaluation in Clinical Practice. 2017;23:1173-1179.
- <sup>143</sup> Bounthavong M, Devine EB, Christopher ML, Harvey MA, Veenstra DL, Basu A. Implementation Evaluation of Academic Detailing on Naloxone Prescribing Trends at the United States Veterans Health Administration. Health Services Research. 2019;54:1055-64.
- <sup>144</sup> Behar E, Rowe C, Santos GM, Santos N, Coffin PO. Academic Detailing Pilot for Naloxone Prescribing Among Primary Care Providers in San Francisco. Family Medicine. 2017;49:122-126.
- <sup>145</sup> Lin DH, Jones CM, Compton WM, Heyward J, Losby JL, Murimi IB, Baldwin GT, Ballreich JM, Thomas D, Bicket M, Porter L, Tierce JC, Alexander GC. Prescription Drug Coverage for Treatment of Low Back Pain Among U.S. Medicaid, Medicare Advantage and Commercial Insurers. JAMA Network Open. 2018;1:e180235.
- <sup>146</sup> Chou R, Deyo R, Friedly J, Skelly A, Hashimoto R, Weimer M, Fu R, Dana T, Kraegel P, Griffin J, Grusing S. Nonpharmacologic Therapies for Low Back Pain: A Systematic Review for an American College of Physicians Clinical Practice Guideline. Annals of Internal Medicine. 2017;166:493-505.
- <sup>147</sup> Centers for Disease Control and Prevention. Pocket Guide: Tapering Opioids for Chronic Pain. [https://www.cdc.gov/drugoverdose/pdf/clinical\\_pocket\\_guide\\_tapering-a.pdf](https://www.cdc.gov/drugoverdose/pdf/clinical_pocket_guide_tapering-a.pdf). Accessed August 1, 2020.
- <sup>148</sup> Oregon Pain Guidance. Tapering – Guidance & Tools. <https://www.oregonpainguidance.org/guideline/tapering>. Accessed August 1, 2020.
- <sup>149</sup> Berna C, Kulich RJ, Rathmell JP. Tapering Long-term Opioid Therapy in Chronic Noncancer Pain: Evidence and Recommendations for Everyday Practice. In Mayo Clinic Proceedings. 2015;90:828-842.
- <sup>150</sup> Chang HY, Lyapustina T, Rutkow L, Daubresse M, Richey M, Faul M, Stuart EA, Alexander GC. Impact of Prescription Drug Monitoring Programs and Pill Mill Laws on High-Risk Opioid Prescribers: A Comparative Interrupted Time Series Analysis. Drug and Alcohol Dependence. 2016;165:1–8.

- <sup>151</sup> Swedlow A, Ireland J, and Johnson G. Prescribing Patterns of Schedule II Opioids in California Workers' Compensation. <https://www.cwci.org/document.php?file=1438.pdf>. Published 2011. Accessed August 1, 2020.
- <sup>152</sup> Controlled Substance Automated Prescription Program (CSAPP). <https://www.csappwv.com/>. Accessed August 1, 2020.
- <sup>153</sup> Mello MM, Messing NA. Restrictions on the Use of Prescribing Data for Drug Promotion. *The New England Journal of Medicine*. 2011;365:1248-1254
- <sup>154</sup> Centers for Disease Control and Prevention. CDC Guideline for Prescribing Opioids for Chronic Pain. <https://www.cdc.gov/drugoverdose/prescribing/guideline.html>. Accessed August 1, 2020.
- <sup>155</sup> Dalhousie University Academic Detailing Service. Opioids in Chronic Non-Cancer Pain. [https://cdn.dal.ca/content/dam/dalhousie/pdf/faculty/medicine/departments/core-units/cpd/academic-detailing/ADS\\_opioids.pdf](https://cdn.dal.ca/content/dam/dalhousie/pdf/faculty/medicine/departments/core-units/cpd/academic-detailing/ADS_opioids.pdf). Published 2010. Accessed August 1, 2020.
- <sup>156</sup> British Columbia Provincial Academic Detailing Service. Opioids in Chronic Non-Cancer Pain: The Basics. <https://www2.gov.bc.ca/assets/gov/health/practitioner-pro/provincial-academic-detailing-service/opioids-in-cncp-suggested-resources.pdf>. Published 2013. Accessed August 1, 2020.
- <sup>157</sup> Centers for Disease Control and Prevention. CDC Guideline for Prescribing Opioids for Chronic Pain. <https://www.cdc.gov/drugoverdose/prescribing/guideline.html>. Accessed August 1, 2020.
- <sup>158</sup> Haddox JD, Joranson D, Angarola RT, Brady A, Carr DB, Blonsky ER, Burchiel K, Gitlin M, Midcap M, Payne R, Simon D, Vasudevan S, Wilson P. The Use of Opioids for the Treatment of Chronic Pain: A Consensus Statement From the American Academy of Pain Medicine and the American Pain Society. *The Clinical Journal of Pain*. 1997;13:6–8.
- <sup>159</sup> Centers for Disease Control and Prevention. CDC Guidelines for Prescribing Opioids for Chronic Pain. <https://www.cdc.gov/drugoverdose/prescribing/guideline.html>. Accessed August 1, 2020.
- <sup>160</sup> National Resource Center for Academic Detailing. Detailing Directory. <http://www.narcad.org/the-detailing-directory.html>. Accessed August 1, 2020.
- <sup>161</sup> Alosa Health. <https://alosahealth.org>. Accessed August 1, 2020.
- <sup>162</sup> Johnson CY. Combating the Opioid Crisis One Doctor at a Time. [https://www.washingtonpost.com/national/health-science/combating-the-opioid-crisis-one-doctor-at-a-time/2019/02/01/9d11c1a0-1a71-11e9-8813-cb9dec761e73\\_story.html](https://www.washingtonpost.com/national/health-science/combating-the-opioid-crisis-one-doctor-at-a-time/2019/02/01/9d11c1a0-1a71-11e9-8813-cb9dec761e73_story.html). Published 2019. Accessed August 1, 2020.
- <sup>163</sup> Lo B, Ott C. What Is the Enemy in CME, Conflicts of Interest or Bias? *JAMA*. 2013;310:1019–1020.
- <sup>164</sup> Sandbrink F, Uppal R. The Time for Opioid Stewardship Is Now. *Joint Commission Journal on Quality and Patient Safety*. 2019;45:1-2.
- <sup>165</sup> Division of Addiction Sciences, Marshall University Joan C. Edwards School of Medicine. City of Solutions. <http://philanthropywv.org/content/uploads/2019/11/COS-Guidebook-Finalized-as-of-9-26-19.pdf>. Published 2019. Accessed August 1, 2020.
- <sup>166</sup> Marshall University. Special Family Grand Rounds – Opioid Prescribing Workshop. <https://jcesom.marshall.edu/events/musom-events/special-family-medicine-grand-rounds-opioid-prescribing-workshop>. Accessed August 1, 2020.

- <sup>167</sup> West Virginia Board of Medicine. Master List of CME Courses. [https://wvbom.wv.gov/Board\\_Approv\\_CME\\_courses\\_all.asp](https://wvbom.wv.gov/Board_Approv_CME_courses_all.asp). Accessed August 1, 2020.
- <sup>168</sup> Pharmaceutical Assistance Contract for the Elderly. Annual Report to the Pennsylvania General Assembly. <https://www.aging.pa.gov/publications/annual-reports/Documents/2017%20PACE%20Annual%20Report.pdf>. Published 2017. Accessed August 1, 2020.
- <sup>169</sup> TOPCARE. <http://mytopcare.org>. Accessed August 1, 2020.
- <sup>170</sup> U.S. Department of Veterans Affairs. Pharmacy Benefits Management Services, Academic Detailing Service - About Us. <https://www.pbm.va.gov/PBM/academicdetailingservice/AboutUs.asp>. Accessed August 1, 2020.
- <sup>171</sup> Havens C. Academic Detailing at Kaiser Permanente Northern California. [http://www.ehcca.com/presentations/compeffective3/havens\\_pc.pdf](http://www.ehcca.com/presentations/compeffective3/havens_pc.pdf). Published 2011. Accessed August 1, 2020.
- <sup>172</sup> O'Brien MA, Rogers S, Jamtvedt G, Oxman AD, Odgaard-Jensen J, Kristoffersen DT, Forsetlund L, Bainbridge D, Freemantle N, Davis DA, Haynes RB, Harvey EL. Educational Outreach Visits: Effects on Professional Practice and Health Care Outcomes. The Cochrane Library. 2007:CD000409.
- <sup>173</sup> Dowell D, Haegerich TM, Chou R. CDC Guideline for Prescribing Opioids for Chronic Pain—United States, 2016. JAMA. 2016;315:1624-45.
- <sup>174</sup> Department of Veterans Affairs, Department of Defense. VA/DoD Clinical Practice Guideline for Opioid Therapy for Chronic Pain Version 3.0. <https://www.healthquality.va.gov/guidelines/Pain/cot/VADoDOTCPG022717.pdf>. Published 2017. Accessed August 1, 2020.
- <sup>175</sup> West Virginia Hospital Association. Guidance for Use and Prescribing of Opioids in Emergency Departments. <http://www.wvha.org/getmedia/94a27c11-c3d5-4709-9c7c-8e29378c58ee/Opioid-Guidelines-Toolkit.pdf.aspx>. Published 2015. Accessed August 1, 2020.
- <sup>176</sup> Great Rivers Regional System for Addiction Care, Cabell County. Prescription Opioid and Heroin Awareness Toolkit: A Prevention Guide. <https://www.marshallhealth.org/media/2085/cabell-county-prescription-opioid-and-heroin-awareness-toolkit.pdf>. Accessed August 1, 2020.
- <sup>177</sup> Centers for Disease Control and Prevention. Opioid Overdose: Helpful Materials for Patients. <https://www.cdc.gov/drugoverdose/patients/materials.html>. Accessed August 1, 2020.
- <sup>178</sup> U.S. Department of Health & Human Services, Substance Abuse and Mental Health Services Administration. Opioid Overdose Prevention Toolkit. <https://store.samhsa.gov/product/Opioid-Overdose-Prevention-Toolkit/SMA18-4742>. Published 2018. Accessed August 1, 2020.
- <sup>179</sup> American College of Surgeons. Patient Education Initiatives, Safe Pain Control: Opioid Abuse and Surgery. <https://www.facs.org/education/opioids/patient-ed>. Accessed August 1, 2020.
- <sup>180</sup> Heath C, Heath D. Made to Stick: Why Some Ideas Survive and Others Die. Random House, New York, New York 2007.
- <sup>181</sup> Hornik R, Maklan D, Cadell D, Prado A, Barmada C, Jacobsohn L, Orwin Robert, Sridharan S, Zador P, Southwell B, Zanutto E, Baskin R, Chu A, Morin C, Talyor K, Steele D. Evaluation of the National Youth Anti-Drug Media Campaign: Fourth Semi-Annual Report of Findings. [http://www.emcdda.europa.eu/attachements.cfm/att\\_94030\\_EN\\_NIDA%20mass%20media%20campaign%20eval](http://www.emcdda.europa.eu/attachements.cfm/att_94030_EN_NIDA%20mass%20media%20campaign%20eval). Published 2002. Accessed August 1, 2020.

<sup>182</sup> Wakefield MA, Loken B, Hornik RC. Use of Mass Media Campaigns to Change Health Behaviour. *The Lancet*. 2010;376:1261-1271.

<sup>183</sup> Allara E, Ferri M, Bo A, Gasparrini A, Faggianov F. Are Mass-Media Campaigns Effective in Preventing Drug Use? a Cochrane Systematic Review and Meta-Analysis. *BMJ Open*. 2015;5:e007449.

<sup>184</sup> Christie C, Baker C, Cooper R, Kennedy PJ, Madras B, Bondi B. The President's Commission on Combating Drug Addiction and the Opioid Crisis. [https://www.whitehouse.gov/sites/whitehouse.gov/files/images/Final\\_Report\\_Draft\\_11-1-2017.pdf](https://www.whitehouse.gov/sites/whitehouse.gov/files/images/Final_Report_Draft_11-1-2017.pdf). Published 2017. Accessed August 1, 2020.

<sup>185</sup> Farrelly MC, Duke JC, Nonnemaker J, MacMonegle AJ, Alexander TN, Zhao X, Delahanty JC, Rao P, Allen JA. Association Between The Real Cost Media Campaign and Smoking Initiation Among Youths — United States, 2014–2016. *Morbidity and Mortality Weekly Report*. 2017;66:47–50.

<sup>186</sup> Substance Abuse and Mental Health Services Administration, Center for the Application of Prevention Technologies. Media Campaigns to Prevent Prescription Drug and Opioid Misuse. <https://iseralaska.org/static/akpfs/media-campaigns-prevent-rx-drugs-opioid-misuse.pdf>. Accessed August 1, 2020.

<sup>187</sup> Substance Abuse and Mental Health Services Administration, Center for the Application of Prevention Technologies. Getting the Message Right! Considerations for Media Campaigns to Prevent Opioid Misuse and Overdose (Webinar Summary). <https://mnprc.org/wp-content/uploads/2019/01/nmupd-media-campaigns-summary.pdf>. Published 2017. Accessed August 1, 2020.

<sup>188</sup> State of New Jersey, Department of Human Services. ReachNJ. <https://reachnj.gov>. Accessed August 1, 2020.

<sup>189</sup> Jennings K. Christie's Yearlong Opioid Advertising Campaign Tops \$42M. <https://www.politico.com/states/new-jersey/story/2018/01/05/christies-yearlong-opioid-advertising-campaign-tops-42m-172696>. Published 2018. Accessed August 1, 2020.

<sup>190</sup> Centers for Disease Control and Prevention. Addressing the Prescription Opioid Crisis. <https://www.cdc.gov/rxawareness/pdf/Overview-Rx-Awareness-Resources.pdf>. Published 2017. Accessed August 1, 2020.

<sup>191</sup> Substance Abuse and Mental Health Services Administration, Center for the Application of Prevention Technologies. Getting the Message Right! Considerations for Media Campaigns to Prevent Opioid Misuse and Overdose (Webinar Summary). <https://mnprc.org/wp-content/uploads/2019/01/nmupd-media-campaigns-summary.pdf>. Published 2017. Accessed August 1, 2020.

<sup>192</sup> Mullins C. A Public Health Emergency: West Virginia's Efforts to Curb the Opioid Crisis (Testimony). <https://docs.house.gov/meetings/IF/IF02/20200114/110367/HHRG-116-IF02-Wstate-MullinsC-20200114.pdf>. Published 2020. Accessed August 1, 2020.

<sup>193</sup> Welch C. A United Front: Connecting for Recovery. [www.wvexecutive.com/united-front-connecting-recovery](http://www.wvexecutive.com/united-front-connecting-recovery). Published 2019. Accessed August 1, 2020.

<sup>194</sup> Centers for Disease Control and Prevention. Best Practices for Comprehensive Tobacco Control Programs—2014. [https://www.cdc.gov/tobacco/stateandcommunity/best\\_practices/index.htm](https://www.cdc.gov/tobacco/stateandcommunity/best_practices/index.htm). Published 2014. Accessed August 1, 2020.

<sup>195</sup> Payne L. Marshall University Receives \$1 Million In-Kind Contribution for Fight Against Addiction. <https://jcesom.marshall.edu/news/musom-news/marshall-university-receives-1-million-in-kind-contribution-for-fight-against-addiction>. Published 2018. Accessed August 1, 2020.

- <sup>196</sup> Wake Up West Virginia. <https://www.wakeup-westvirginia.com>. Accessed August 1, 2020.
- <sup>197</sup> Olsen Y, Sharfstein JM. Confronting the Stigma of Opioid Use Disorder – and its Treatment. *JAMA*. 2014;311:1393-1394.
- <sup>198</sup> Kennedy-Hendricks A, Gielen AC, McGinty EE, McDonald E, Shields W, Barry CL. Medication Sharing, Storage, and Disposal Practices for Opioid Medications Among US Adults. *JAMA Internal Medicine*. 2016;176:1027-1029.
- <sup>199</sup> Bicket MC, Long JJ, Pronovost PJ, Alexander GC, Wu CL. Prescription Opioid Analgesics Commonly Unused After Surgery: A Systematic Review. *JAMA Surgery*. 2017;152:1066-1071.
- <sup>200</sup> National Academies of Sciences, Engineering, and Medicine. Pain Management and the Opioid Epidemic: Balancing Societal and Individual Benefits and Risks of Prescription Opioid Use. Washington (DC): National Academies Press (US); 2017 (Chapter 5, 317-319).
- <sup>201</sup> Seehusen DA, Edwards J. Patient Practices and Beliefs Concerning Disposal of Medications. *Journal of the American Board of Family Medicine*. 2006;19:542-7.
- <sup>202</sup> McCance-Katz EF. The National Survey on Drug Use and Health: 2017. <https://www.samhsa.gov/data/sites/default/files/nsduh-ppt-09-2018.pdf>. Accessed August 1, 2020.
- <sup>203</sup> US Food and Drug Administration. Disposal of Unused Medicines: What You Should Know. <https://www.fda.gov/Drugs/ResourcesForYou/Consumers/BuyingUsingMedicineSafely/EnsuringSafeUseofMedicine/SafeDisposalofMedicines/ucm186187.htm>. Published 2019. Accessed August 1, 2020.
- <sup>204</sup> Executive Office of the President of the United States. National Drug Control Strategy. <https://obamawhitehouse.archives.gov/sites/default/files/ondcp/ndcs2011.pdf>. Published 2011. Accessed August 1, 2020.
- <sup>205</sup> U.S. Drug Enforcement Agency. 18<sup>th</sup> National Take Back Day Results. <https://takebackday.dea.gov/sites/default/files/NTBI%2018%20Totals.pdf>. Published 2019. Accessed August 1, 2020.
- <sup>206</sup> The Herald-Dispatch. National Drug Take Back Day Set for Saturday. [https://www.herald-dispatch.com/\\_zapp/national-drug-take-back-day-set-for-saturday/article\\_b2862226-2253-59ef-a15e-25d452887054.html](https://www.herald-dispatch.com/_zapp/national-drug-take-back-day-set-for-saturday/article_b2862226-2253-59ef-a15e-25d452887054.html). Published 2019. Accessed August 1, 2020.
- <sup>207</sup> Herald-Dispatch. Huntington Police Receive Drug Incinerator. [https://www.herald-dispatch.com/news/huntington-police-receive-drug-incinerator/article\\_a697ef5c-c943-5997-8d95-2b5d1f738aa8.html](https://www.herald-dispatch.com/news/huntington-police-receive-drug-incinerator/article_a697ef5c-c943-5997-8d95-2b5d1f738aa8.html). Published 2016. Accessed August 1, 2020.
- <sup>208</sup> Rogers DS, Tibben-Lembke RS. Going Backwards: Reverse Logistics Trends and Practices. Reverse Logistics Executive Council, Pittsburgh, PA. August, 1998.
- <sup>209</sup> Great Rivers Regional System for Addiction Care, Cabell County. Prescription Opioid and Heroin Awareness Toolkit: A Prevention Guide. <https://www.marshallhealth.org/media/2085/cabell-county-prescription-opioid-and-heroin-awareness-toolkit.pdf>. Accessed August 1, 2020.
- <sup>210</sup> Thach AV, Brown CM, Pope N. Consumer Perceptions About a Community Pharmacy-Based Medication Take Back Program. *Journal of Environmental Management*. 2013;127:23-27.



- <sup>211</sup> United States Government Accountability Office. Low Participation by Pharmacies and Other Entities as Voluntary Collectors of Unused Prescription Drugs. <https://www.gao.gov/assets/690/687719.pdf>. Published 2017. Accessed August 1, 2020.
- <sup>212</sup> Egan KL, Gregory E, Sparks M, Wolfson M. From Dispensed to Disposed: Evaluating the Effectiveness of Disposal Programs Through a Comparison With Prescription Drug Monitoring Program Data. *The American Journal of Drug and Alcohol Abuse*. 2017;43:69–77.
- <sup>213</sup> US Food and Drug Administration. Disposal of Unused Medicines: What You Should Know. <https://www.fda.gov/Drugs/ResourcesForYou/Consumers/BuyingUsingMedicineSafely/EnsuringSafeUseofMedicine/SafeDisposalofMedicines/ucm186187.htm>. Published 2019. Accessed August 1, 2020.
- <sup>214</sup> DisposeRx. <https://disposerx.com>. Accessed August 1, 2020.
- <sup>215</sup> Product Stewardship Institute. How-to Guide for Drug Take-Back: Managing a Pharmacy-Based Collection Program for Leftover Household Pharmaceuticals. [https://www.productstewardship.us/page/Start\\_Drug\\_Takeback](https://www.productstewardship.us/page/Start_Drug_Takeback). Published 2016. Accessed August 1, 2020.
- <sup>216</sup> King County. King County Passes Secure Medicine Return Regulations. <https://kingcountysecuremedicinereturn.files.wordpress.com/2015/01/smr-regulationsoverview-handout-7dec141.pdf>. Accessed August 1, 2020.
- <sup>217</sup> Product Stewardship Institute. How-to Guide for Drug Take-Back: Managing a Pharmacy-Based Collection Program for Leftover Household Pharmaceuticals. [https://www.productstewardship.us/page/Start\\_Drug\\_Takeback](https://www.productstewardship.us/page/Start_Drug_Takeback). Published 2016. Accessed August 1, 2020.
- <sup>218</sup> Winchester Virginia Police Department. Medication Disposal. <https://www.winchesterpolice.org/services/medication-disposal>. Accessed August 1, 2020.
- <sup>219</sup> Mihalic S, Fagan A, Irwin K, Ballard D, Elliott D. Blueprints for Violence Prevention (NCJ 204274) Washington, DC: Office of Juvenile and Delinquency Prevention; 2004
- <sup>220</sup> Weissberg RP, Kumpfer KL, Seligman MEP. Prevention That Works for Children and Youth. An Introduction. *American Psychological Association*. 2003; 58:425–432.
- <sup>221</sup> Welsh BC, Farrington DP. Evidence-based Crime Prevention. In: Welsh BC, Farrington DP, editors. Preventing crime: What works for children, offenders, victims and places. Dordrecht, The Netherlands: Springer; 2006. pp. 1–17.
- <sup>222</sup> Chou CP, Montgomery S, Pentz MA, Rohrbach LA, Johnson CA, Flay BR, MacKinnon DP. Effects of a Community-Based Prevention Program on Decreasing Drug Use in High-Risk Adolescents. *American Journal of Public Health*. 1998; 88:944–948.
- <sup>223</sup> Botvin GJ, Baker E, Dusenbury L, Botvin EM, Diaz T. Long-Term Follow-Up Results of a Randomized Drug Abuse Prevention Trial in a White Middle-Class Population. *JAMA*. 1995; 273:1106–1112.
- <sup>224</sup> Butterfoss FD, Goodman RM, Wandersman A. Community Coalitions for Prevention and Health Promotion. *Health Education Research*. 1993;8:315–330.
- <sup>225</sup> Wandersman A. Community Science: Bridging the Gap Between Science and Practice With Community-Centered Models. *American Journal of Community Psychology*. 2003;31:227–242.
- <sup>226</sup> Communities That Care Plus. How It Works. <https://www.communitiesthatcare.net/how-ctc-works>. Accessed August 1, 2020.

- <sup>227</sup> Ross D. Huntington Herald Dispatch. Wellness Coalition Working to Help Youth Make Healthy Decisions. [https://www.herald-dispatch.com/news/putnam\\_news/wellness-coalition-working-to-help-youth-make-healthy-decisions/article\\_0522d502-d3d9-5bde-985f-66673b9359b5.html](https://www.herald-dispatch.com/news/putnam_news/wellness-coalition-working-to-help-youth-make-healthy-decisions/article_0522d502-d3d9-5bde-985f-66673b9359b5.html). Published 2015. Accessed August 1, 2020.
- <sup>228</sup> Kanawha Communities That Care. <https://www.facebook.com/ketcwv>. Accessed August 1, 2020.
- <sup>229</sup> United Way of the River Cities. <http://www.unitedwayriverscities.org>. Accessed August 1, 2020.
- <sup>230</sup> WFXR. Parenting From Behind Bars. <https://www.wfxrtv.com/news/local-news/parenting-from-behind-bars>. Published 2016. Accessed August 1, 2020.
- <sup>231</sup> Team For West Virginia Children. About Strengthening Families West Virginia. <https://teamwv.org/strengthening-families-wv-landing/about-strengthening-families-wv>. Accessed August 1, 2020.
- <sup>232</sup> Big Brothers Big Sisters of the Tri-State. <https://www.bbbstristate.org>. Big Brothers Big Sisters of the Tri-State. <https://www.bbbstristate.org>. Accessed August 1, 2020.
- <sup>233</sup> Hawkins JD, Catalano RF, Arthur MW, Egan E, Brown EC, Abbott RD, Murray DM. Testing Communities That Care: The Rationale, Design and Behavioral Baseline Equivalence of the Community Youth Development Study. *Prevention Science*. 2008;9:178.
- <sup>234</sup> Hawkins JD, Oesterle S, Brown EC, Monahan KC, Abbott RD, Arthur MW, Catalano RF. Sustained Decreases in Risk Exposure and Youth Problem Behaviors After Installation of the Communities That Care Prevention System in a Randomized Trial. *Archives of Pediatrics & Adolescent Medicine*. 2012;166:141-8.
- <sup>235</sup> Hawkins JD, Oesterle S, Brown EC, Abbott RD, Catalano RF. Youth problem behaviors 8 years after implementing the Communities That Care prevention system: A community-randomized trial. *JAMA Pediatrics*. 2014;168:122-9.
- <sup>236</sup> Hawkins JD, Oesterle S, Brown EC, Monahan KC, Abbott RD, Arthur MW, Catalano RF. Sustained Decreases in Risk Exposure and Youth Problem Behaviors After Installation of the Communities That Care Prevention System in a Randomized Trial. *Archives of Pediatrics & Adolescent Medicine*. 2012;166:141-8.
- <sup>237</sup> Hawkins JD, Oesterle S, Brown EC, Abbott RD, Catalano RF. Youth problem behaviors 8 years after implementing the Communities That Care prevention system: A community-randomized trial. *JAMA Pediatrics*. 2014;168:122-9.
- <sup>238</sup> Oesterle S, Hawkins JD, Kuklinski MR, Fagan AA, Fleming C, Rhew IC, Brown EC, Abbott RD, Catalano RF. Effects of Communities That Care on Males' and Females' Drug Use and Delinquency 9 Years After Baseline in a Community-Randomized Trial. *American Journal of Community Psychology*. 2015;56:217-28.
- <sup>239</sup> Oesterle S, Hawkins JD, Kuklinski MR, Fagan AA, Fleming C, Rhew IC, Brown EC, Abbott RD, Catalano RF. Effects of Communities That Care on Males' and Females' Drug Use and Delinquency 9 Years After Baseline in a Community-Randomized Trial. *American Journal of Community Psychology*. 2015;56:217-28.
- <sup>240</sup> Hawkins JD, Oesterle S, Brown EC, Abbott RD, Catalano RF. Youth problem behaviors 8 years after implementing the Communities That Care prevention system: A community-randomized trial. *JAMA Pediatrics*. 2014;168:122-9.
- <sup>241</sup> Youth.gov. Communities That Care. <https://youth.gov/content/communities-care>. Accessed August 1, 2020.
- <sup>242</sup> Kuklinski MR, Briney JS, Hawkins JD, Catalano RF. Cost-Benefit Analysis of Communities That Care Outcomes at Eighth Grade. *Prevention Science*. 2012;13:150-61.

&21),'(17,\$/

---

.XNOLOVNL05 y)DJDO \$\$ <+DZNDQV -' %UL Lqip"xL q0" 0 @ Hy

























- <sup>427</sup> Babcock C, Rockich-Winston N, Booth C. Bringing Naloxone to Ground Zero: Huntington, West Virginia. *Journal of the American Pharmacists Association*. 2017;57:S9-10.
- <sup>428</sup> Office of Drug Control Policy, West Virginia Department of Health and Human Resources. Data Dashboard. <https://dhhr.wv.gov/office-of-drug-control-policy/datadashboard/Pages/default.aspx>. Accessed August 1, 2020.
- <sup>429</sup> Substance Abuse and Mental Health Services Administration. Now What? The Role of Prevention Following a Nonfatal Opioid Overdose. [https://www.samhsa.gov/capt/sites/default/files/resources/role\\_of\\_prevention\\_following\\_and\\_overdose-v02.pdf](https://www.samhsa.gov/capt/sites/default/files/resources/role_of_prevention_following_and_overdose-v02.pdf). Published 2018. Accessed August 1, 2020.
- <sup>430</sup> Ranapurwala SI, Shanahan ME, Alexandridis AA, Proescholdbell SK, Naumann RB, Edwards Jr D, Marshall SW. Opioid Overdose Mortality Among Former North Carolina Inmates: 2000–2015. *American Journal of Public Health*. 2018;108:1207-13.
- <sup>431</sup> Deposition of Charles Zerkle, Cabell County Sheriff, in this litigation, June 17, 2020, page 73.
- <sup>432</sup> Compton MT, Esterberg ML, McGee R, Kotwicki RJ, and Oliva JR. Crisis Intervention Team Training: Changes in Knowledge, Attitudes, and Stigma Related to Schizophrenia. *Psychiatric Services*. 2006;57:1999-1202.
- <sup>433</sup> Demir B, Broussard B, Goulding SM, and Compton MT. Beliefs About Causes of Schizophrenia Among Police Officers Before and After Crisis Intervention Team Training. *Community Mental Health Journal*. 2009;45:385-392.
- <sup>434</sup> Livingston JD, Milne T, Fang ML, Amari E. The Effectiveness of Interventions for Reducing Stigma Related to Substance Use Disorders: A Systematic Review. *Addiction*. 2012;107:39-50.
- <sup>435</sup> Bahora M, Hanafi S, Chien VH, Compton MT. Preliminary Evidence of Effects of Crisis Intervention Team Training on Self-Efficacy and Social Distance. *Administration and Policy in Mental Health and Mental Health Services Research*. 2008;35:159-167.
- <sup>436</sup> Watson AC, Fulambarker AJ. The Crisis Intervention Team Model of Police Response to Mental Health Crises: A Primer for Mental Health Practitioners. *Best Practices in Mental Health*. 2012;8:71.
- <sup>437</sup> Teller JL, Munetz MR, Gil KM, Ritter C. Crisis Intervention Team Training for Police Officers Responding to Mental Disturbance Calls. *Psychiatric Services*. 2006;57:232-237.
- <sup>438</sup> Compton MT, Bakeman R, Broussard B, Hankerson-Dyson D, Husbands L, Krishan S, Stewart-Hutto T, D'Orio BM, Oliva JR, Thompson NJ, Watson AC. The Police-Based Crisis Intervention Team (CIT) Model: I. Effects on Officers' Knowledge, Attitudes, and Skills. *Psychiatric Services*. 2014;65:517-522.
- <sup>439</sup> LEAD National Support Bureau. <https://www.leadbureau.org>. Accessed August 1, 2020.
- <sup>440</sup> National Institute of Justice. Program Profile: Law Enforcement Assisted Diversion (LEAD) Program (Seattle, Washington). <https://www.crimesolutions.gov/ProgramDetails.aspx?ID=477>. Published 2016. Accessed August 1, 2020.
- <sup>441</sup> Division of Addiction Sciences, Marshall University Joan C. Edwards School of Medicine. City of Solutions. <http://philanthropywv.org/content/uploads/2019/11/COS-Guidebook-Finalized-as-of-9-26-19.pdf>. Published 2019. Accessed August 1, 2020.
- <sup>442</sup> Division of Addiction Sciences, Marshall University Joan C. Edwards School of Medicine. City of Solutions. <http://philanthropywv.org/content/uploads/2019/11/COS-Guidebook-Finalized-as-of-9-26-19.pdf>. Published 2019. Accessed August 1, 2020.

- <sup>443</sup> Collins SE, Lonczak HS, Clifasefi SL. Seattle's Law Enforcement Assisted Diversion (LEAD): Program Effects on Recidivism Outcomes. *Evaluation and Program Planning*. 2017;64:49-56.
- <sup>444</sup> Clifasefi SL, Collins SE. LEAD Program Evaluation: Describing LEAD Cases Management in Participants' Own Words. Harm Reduction Research and Treatment Center, University of Washington. [https://www.sfdph.org/dph/files/leadSF/Reports/Specific-Aim-4-FINAL\\_UW-LEAD-Evaluation-Qualitative-Report-11.1.16\\_updated.pdf](https://www.sfdph.org/dph/files/leadSF/Reports/Specific-Aim-4-FINAL_UW-LEAD-Evaluation-Qualitative-Report-11.1.16_updated.pdf). Published 2016. Accessed August 1, 2020.
- <sup>445</sup> Collins SE, Lonczak HS, Clifasefi SL. Seattle's Law Enforcement Assisted Diversion (Lead): Program Effects on Criminal Justice and Legal System Utilization and Costs. *Journal of Experimental Criminology*. 2019;15:201-11.
- <sup>446</sup> Clifasefi SL, Lonczak HS, Collins SE. Seattle's Law Enforcement Assisted Diversion (LEAD) program: Within-subjects changes on housing, employment, and income/benefits outcomes and associations with recidivism. *Crime & Delinquency*. 2017;63:429-445.
- <sup>447</sup> LEAD National Support Bureau. <https://www.leadbureau.org>. Accessed August 1, 2020.
- <sup>448</sup> Division of Addiction Sciences, Marshall University Joan C. Edwards School of Medicine. City of Solutions. <http://philanthropywv.org/content/uploads/2019/11/COS-Guidebook-Finalized-as-of-9-26-19.pdf>. Published 2019. Accessed August 1, 2020.
- <sup>449</sup> West Virginia Department of Corrections and Rehabilitation. 2015 West Virginia Recidivism Report. <https://dcr.wv.gov/resources/Documents/publications/Recidivism%202015.pdf>. Published 2019. Accessed August 1, 2020.
- <sup>450</sup> Tierney B. West Virginia Awarded Millions to Fight the Opioid Crisis. <https://www.wsaz.com/content/news/West-Virginia-awarded-millions-in-federal-funds-to-fight-opioid-crisis-566174681.html>. Published 2019. Accessed August 1, 2020.
- <sup>451</sup> Hunt JB, Moore RH, Hayes LW, Lubitz RL. Community Oriented Policing: What it is – Why it Works – How to Get Started. <https://www.ncjrs.gov/pdffiles1/Digitization/169113NCJRS.pdf>. Published 1997. Accessed August 1, 2020.
- <sup>452</sup> Adams RE, Rohe WM, Arcury TA. Awareness of Community-Oriented Policing and Neighborhood Perceptions in Five Small to Midsize Cities. *Journal of Criminal Justice*. 2005;33:43-54.
- <sup>453</sup> Gill C, Weisburd D, Telep CW, Vitter Z, Bennett T. Community-Oriented Policing to Reduce Crime, Disorder and Fear and Increase Satisfaction and Legitimacy Among Citizens: A Systematic Review. *Journal of Experimental Criminology*. 2014;10:399-428.
- <sup>454</sup> Ferrise A. Cleveland Police's Specialized Opioid Unit Now a National Model. [https://www.cleveland.com/metro/index.ssf/2018/05/specialized\\_cleveland\\_police\\_u.html](https://www.cleveland.com/metro/index.ssf/2018/05/specialized_cleveland_police_u.html). Published 2019. Accessed August 1, 2020.
- <sup>455</sup> Baltimore Police Department. Policy 801 – Overdose Response and Investigation Protocol. [https://www.baltimorepolice.org/sites/default/files/Policies/801\\_Overdose\\_Response\\_And\\_Investigation\\_Protocol.pdf](https://www.baltimorepolice.org/sites/default/files/Policies/801_Overdose_Response_And_Investigation_Protocol.pdf). Published 2016. Accessed August 1, 2020.
- <sup>456</sup> Bureau of Justice Statistics. Special Report: Drug Use, Dependence, and Abuse Among State Prisoners and Jail Inmates, 2007-2009. [https://www.bjs.gov/content/pub/pdf/dudaspi0709\\_sum.pdf](https://www.bjs.gov/content/pub/pdf/dudaspi0709_sum.pdf). Published 2017. Accessed August 1, 2020.



- <sup>457</sup> Bronson J, Stroop J, Zimmer S, Berzofsky M. Drug Use, Dependence, and Abuse Among State Prisoners and Jail Inmates, 2007-2009. <https://www.bjs.gov/content/pub/pdf/dudaspi0709.pdf>. Published 2017. Accessed August 1, 2020.
- <sup>458</sup> Boutwell AE, Nijhawan A, Zaller N, Rich JD. Arrested on Heroin: A National Opportunity. *Journal of Opioid Management*. 2007;3:328-32.
- <sup>459</sup> Justice Center, the Council of State Governments. West Virginia's Justice Reinvestment: Strengthening Community Supervision, Increasing Accountability, and Expanding Access to Substance Use Treatment. <https://perma.cc/53HH-UMHN>. Published 2014. Accessed August 1, 2020.
- <sup>460</sup> Chandler RK, Fletcher BW, Volkow ND. Treating Drug Abuse and Addiction in the Criminal Justice System: Improving Public Health and Safety. *JAMA*. 2009;301:183-190.
- <sup>461</sup> Williams, T. Opioid Users Are Filling Jails. Why Don't Jails Treat Them? <https://www.nytimes.com/2017/08/04/us/heroin-addiction-jails-methadone-suboxone-treatment.html>. Published 2017. Accessed August 1, 2020.
- <sup>462</sup> Hedrich D, Alves P, Farrell M, Stover H, Moller L, Mayet S. The Effectiveness of Opioid Maintenance Treatment in Prison Settings: A Systematic Review. *Addiction*. 2012;107:501-517.
- <sup>463</sup> Shames A, Subramanian, R. A Path to Recovery: Treating Opioid Use in West Virginia's Criminal Justice System. <https://www.vera.org/downloads/publications/a-path-to-recovery-treating-opioid-use-west-virginia-criminal-justice-system.pdf>. Published 2017. Accessed August 1, 2020.
- <sup>464</sup> Binswanger IA. Opioid Use Disorder and Incarceration-Hope for Ensuring the Continuity of Treatment. *The New England Journal of Medicine*. 2019;380:1193.
- <sup>465</sup> Marlowe D, Hardin C, Fox C. Painting the Current Picture: A National Report on Drug Courts and Other Problem-Solving Courts in the United States. National Drug Court Institute. <https://www.ndci.org/wp-content/uploads/2016/05/Painting-the-Current-Picture-2016.pdf>. Published 2016. Accessed August 1, 2020.
- <sup>466</sup> Christie C, Baker C, Cooper R, Kennedy PJ, Madras B, Bondi B. The President's Commission on Combating Drug Addiction and the Opioid Crisis. [https://www.whitehouse.gov/sites/whitehouse.gov/files/images/Final\\_Report\\_Draft\\_11-1-2017.pdf](https://www.whitehouse.gov/sites/whitehouse.gov/files/images/Final_Report_Draft_11-1-2017.pdf). Published 2017. Accessed August 1, 2020.
- <sup>467</sup> Program Handbook: Cabell County Drug Court. <http://www.courtswv.gov/lower-courts/county-drug-courts/cabell-handbook.pdf>. Accessed August 1, 2020.
- <sup>468</sup> The Current Problem We face. HUNT\_00150316.
- <sup>469</sup> Drug Courts. HUNT\_00230479.
- <sup>470</sup> Huddleston III CW, Douglas B, Casebolt R. Painting The Current Picture: A National Report Card on Drug Courts and Other Problem-Solving Court Programs in the United States Volume II, Number 1. <https://www.ndci.org/sites/default/files/nadcp/PCP%20Report%20FINAL.PDF>. Published 2011. Accessed August 1, 2020.
- <sup>471</sup> U.S. Department of Justice, Office of Justice Programs. Drug Courts. <https://www.ncjrs.gov/pdffiles1/nij/238527.pdf>. Published 2020. Accessed August 1, 2020.

- 472 Mitchell O, Wilson DB, Eggers A, MacKenzie DL. Assessing the Effectiveness of Drug Courts on Recidivism: A Meta-Analytic Review of Traditional and Non-Traditional Drug Courts. *Journal of Criminal Justice*. 2012;40:60-71.
- 473 Binswanger IA, Nowels C, Corsi KF, Long J, Booth RE, Kutner J, Steiner JF. “From the Prison Door Right to the Sidewalk, Everything Went Downhill,” a Qualitative Study of the Health Experiences of Recently Released Inmates. *International Journal of Law and Psychiatry*. 2011; 34:249–255.
- 474 Petersilia J. *When Prisoners Come Home: Parole and Prisoner Reentry*. Oxford University Press, 2003.
- 475 Lattimore PK, Steffey DM, Visher CA. Prisoner Reentry in the First Decade of the Twenty-First Century. *Victims and Offenders*. 2010;5:253-267.
- 476 The National Reentry Resource Center. <https://csgjusticecenter.org/nrrc>. Accessed August 1, 2020.
- 477 Hunter SB, Huang CY. Substance Use Treatment and Reentry (Star) Program: Final Evaluation Report. *RAND Health Quarterly*. 2014;4:2.
- 478 Scaggs S, Bales WD, Clark C, Ensley D, Coltharp P, Blomberg TG. An Assessment of Substance Abuse Treatment Programs in Florida’s Prisons Using a Random Assignment Experimental Design. Report submitted to the National Institute of Justice Office of Justice Programs, U.S. Department of Justice. Florida Department of Corrections and Florida State University College of Criminology and Criminal Justice. <https://www.ncjrs.gov/App/Publications/abstract.aspx?ID=272003>. Published 2016. Accessed August 1, 2020.
- 479 Council of State Governments Justice Center. Best Practices for Successful Reentry for People Who Have Opioid Addictions. <https://www.ncjrs.gov/App/Publications/abstract.aspx?ID=275202>. Published 2018. Accessed August 1, 2020.
- 480 Barnes M, Irvine A, Ortega N. Santa Clara County Adult Reentry Strategic Plan Ready to Change: Promoting Safety and Health for the Whole Community. <https://www.sccgov.org/sites/reentry/governance/Documents/SCC-Reentry-Strategic-Plan-Board-Approved-10-23-2012.pdf>. Published 2012. Accessed August 1, 2020.
- 481 Shames A, Subramanian, R. A Path to Recovery: Treating Opioid Use in West Virginia’s Criminal Justice System. <https://www.vera.org/downloads/publications/a-path-to-recovery-treating-opioid-use-west-virginia-criminal-justice-system.pdf>. Published 2017. Accessed August 1, 2020.
- 482 Walton MT, Hall MT. The Effects of Employment Interventions on Addiction Treatment Outcomes: A Review of the Literature. *Journal of Social Work Practice in the Addictions*. 2016; 16:358–384.
- 483 Case A, Deaton A. *Deaths of Despair and the Future of Capitalism*. Princeton University Press, 2020.
- 484 Ruhm CJ. Deaths of Despair or Drug Problems? National Bureau of Economic Research. <https://www.nber.org/papers/w24188.pdf>. Published 2018. Accessed August 1, 2020.
- 485 Venkataramani AS, Bair EF, O’Brien RL, Tsai AC. Association Between Automotive Assembly Plant Closures and Opioid Overdose Mortality in the United States: A Difference-in-Differences Analysis. *JAMA Internal Medicine*. 2020;180:254–262.
- 486 Young NK. TIP 38: Integrating Substance Abuse Treatment and Vocational Services: Treatment Improvement Protocol (TIP) Series 38. US Department of Health and Human Services. <https://store.samhsa.gov/sites/default/files/d7/priv/sma12-4216.pdf>. Published 2000. Accessed August 1, 2020.
- 487 Shepard DS, Reif S. the Value of Vocational Rehabilitation in Substance User Treatment: A Cost-Effectiveness Framework. *Substance Use & Misuse*. 2004;39:2581–2609.

- 488 Marsden J, Anders P, Clark H, Colocassis K, Eastwood B, Knight J, Melaugh A, Quinn D, Wright V, Stannard J. Protocol for a Multi-Centre, Definitive Randomised Controlled Trial of the Effectiveness of Individual Placement and Support for Employment Support Among People With Alcohol and Drug Dependence. *Trials*. 2020;21:1–2.
- 489 Watson DP, Brucker K, McGuire A, Snow-Hill NL, Xu H, Cohen A, Campbell M, Robison L, Sights E, Buhner R, O'Donnell D. Replication of an Emergency Department-Based Recovery Coaching Intervention and Pilot Testing of Pragmatic Trial Protocols Within the Context of Indiana's Opioid State Targeted Response Plan. *Journal of Substance Abuse Treatment*. 2020;108:88–94.
- 490 Samuels EA, Baird J, Yang ES, Mello MJ. Adoption and Utilization of an Emergency Department Naloxone Distribution and Peer Recovery Coach Consultation Program. *Academic Emergency Medicine*. 2019;26:160–173.
- 491 West Virginia Certification Board for Addiction & Prevention Professionals. Certification Applications & Manuals. <https://www.wvcbapp.org/applications>. Accessed August 1, 2020.
- 492 Substance Abuse and Mental Health Services Administration. Peers. <https://www.samhsa.gov/brss-tacs/recovery-support-tools/peers>. Accessed August 1, 2020.
- 493 Marshall Health. Creating Opportunities for Recovery Employment (CORE). <https://www.marshallhealth.org/media/2076/creating-opportunities-for-recovery-employment-core.pdf>. Accessed August 1, 2020.
- 494 Chatterji P, Meara E. Consequences of Eliminating Federal Disability Benefits for Substance Abusers. *Journal of Health Economics*. 2010;29:226–240.
- 495 Davies P, Iams H, Rupp K. the Effect of Welfare Reform on SSA's Disability Programs: Design of Policy Evaluation and Early Evidence. *Social Security Bulletin*. 2000;63:3-11.
- 496 Hogan SR, Speigman R, Norris JC. The Effects of Eliminating Supplemental Security Income Drug Addiction and Alcoholism Eligibility on the Mental Health of Low-Income Substance Abusers. *Social Work in Public Health*. 2010;25:438–453.
- 497 Ellis MS, Kasper ZA, Cicero TJ. The Impact of Opioid Use Disorder on Levels of Educational Attainment: Perceived Benefits and Consequences. *Drug and Alcohol Dependence*. 2020; 206:107618.
- 498 Richardson L, Wood E, Montaner J, Kerr T. Addiction Treatment-Related Employment Barriers: The Impact of Methadone Maintenance. *Journal of Substance Abuse Treatment*. 2012; 43:276–284.
- 499 Shepard DS, Reif S. the Value of Vocational Rehabilitation in Substance User Treatment: A Cost-Effectiveness Framework. *Substance Use & Misuse*. 2004;39:2581–2609.
- 500 Henkel D. Unemployment and Substance Use: A Review of the Literature (1990–2010). *Current Drug Abuse Reviews*. 2011;4:4–27.
- 501 Compton WM, Gfroerer J, Conway KP, Finger MS. Unemployment and Substance Outcomes in the United States 2002–2010. *Drug and Alcohol Dependence*. 2014;142:350–353.
- 502 Substance Abuse and Mental Health Services Administration. TIP 38: Integrating Substance Abuse Treatment and Vocational Services: Treatment Improvement Protocol (TIP) Series 38. <https://store.samhsa.gov/sites/default/files/d7/priv/sma12-4216.pdf>. Published 2000. Accessed August 1, 2020.
- 503 Schuman-Olivier Z, Sundaram S. Creating Recovery-Friendly Workplaces. <https://www.health.harvard.edu/blog/creating-recovery-friendly-workplaces-2018120615520>. Published 2018. Accessed August 1, 2020.

- <sup>504</sup> Appelbaum PS, Parks J. Holding Insurers Accountable for Parity in Coverage of Mental Health Treatment. *Psychiatric Services*. 2020;71:202–204.
- <sup>505</sup> Substance Abuse and Mental Health Services Administration. TIP 38: Integrating Substance Abuse Treatment and Vocational Services: Treatment Improvement Protocol (TIP) Series 38. US Department of Health and Human Services. <https://store.samhsa.gov/sites/default/files/d7/priv/sma12-4216.pdf>. Published 2000. Accessed August 1, 2020.
- <sup>506</sup> Division of Addiction Sciences, Marshall University Joan C. Edwards School of Medicine. City of Solutions. <http://philanthropywv.org/content/uploads/2019/11/COS-Guidebook-Finalized-as-of-9-26-19.pdf>. Published 2019. Accessed August 1, 2020.
- <sup>507</sup> Ompad DC, Gershon RR, Sandh S, Acosta P, Palamar JJ. Construction Trade and Extraction Workers: A Population at High Risk for Drug Use in the United States, 2005–2014. *Drug and Alcohol Dependence*. 2019;205:107640.
- <sup>508</sup> Rosenheck RA, Mares AS. Implementation of Supported Employment for Homeless Veterans With Psychiatric or Addiction Disorders: Two-Year Outcomes. *Psychiatric Services*. 2007; 58:325–333.
- <sup>509</sup> Frederick DE, VanderWeele TJ. Supported Employment: Meta-Analysis and Review of Randomized Controlled Trials of Individual Placement and Support. *PloS One*. 2019;14:e0212208.
- <sup>510</sup> Frederick DE, VanderWeele TJ. Supported Employment: Meta-Analysis and Review of Randomized Controlled Trials of Individual Placement and Support. *PloS One*. 2019;14:e0212208.
- <sup>511</sup> Gupta H. the Power of Fully Supporting Community College Students: The Effects of the City University of New York’s Accelerated Study in Associate Programs After Six Years. MDRC. 2017.
- <sup>512</sup> Weiss MJ, Ratledge A, Sommo C, Gupta H. Supporting Community College Students From Start to Degree Completion: Long-Term Evidence From a Randomized Trial of CUNY’s ASAP. *American Economic Journal: Applied Economics*. 2019;11:253–297.
- <sup>513</sup> Miller C, Headlam C, Manno M, Cullinan D. Increasing Community College Graduation Rates with a Proven Model: Three-Year Results from the Accelerated Study in Associate Programs (ASAP) Ohio Demonstration. MDRC. 2020.
- <sup>514</sup> Hanks A. Ban the Box and Beyond. <https://www.americanprogress.org/issues/economy/reports/2017/07/27/436756/ban-box-beyond>. Published 2017. Accessed August 1, 2020.
- <sup>515</sup> Flake DF. Do Ban-the-Box Laws Really Work. *Iowa Law Review*. 2018;104:1079.
- <sup>516</sup> Cook F, Halpin SM. Understanding Grief After an Overdose Death. *Understanding Grief After an Overdose Death*. <https://escholarship.umassmed.edu/ner/61>. Published 2018. Accessed August 1, 2020.
- <sup>517</sup> Feigelman W, Feigelman B, Range LM. Grief and Healing Trajectories of Drug-Death-Bereaved Parents. *Journal of Death and Dying*. 2020;80:629-647.
- <sup>518</sup> Feigelman W, Jordan JR, Gorman BS. Parental Grief After a Child’s Drug Death Compared to Other Death Causes: Investigating a Greatly Neglected Bereavement Population. *Journal of Death and Dying*. 2011;63:291-316.
- <sup>519</sup> Deposition of Jan Rader, Fire Chief, Huntington Fire Department, in this litigation, June 17, 2020, page 199.

- <sup>520</sup> Children's Bureau. Parenting a Child Who Has Experienced Trauma. <https://www.childwelfare.gov/pubPDFs/child-trauma.pdf>. Published 2014. Accessed August 1, 2020.
- <sup>521</sup> Centers for Disease Control and Prevention. Anxiety and Depression in Children. <https://www.cdc.gov/childrensmentalhealth/depression.html>. Accessed August 1, 2020.
- <sup>522</sup> West Virginia Department of Education. 2017 Youth Risk Behavior Survey Results. <http://wvde.state.wv.us/healthyschools/documents/yrbs/2017/2017WVH%20Summary%20Tables.pdf>. Accessed August 1, 2020.
- <sup>523</sup> Substance Abuse and Mental Health Services Administration. Behavioral Health Barometer: West Virginia, 2015. [https://www.samhsa.gov/data/sites/default/files/2015\\_West-Virginia\\_BHBarometer.pdf](https://www.samhsa.gov/data/sites/default/files/2015_West-Virginia_BHBarometer.pdf). Accessed August 1, 2020.
- <sup>524</sup> Great Rivers Regional System for Addiction Care, Cabell County. Prescription Opioid and Heroin Awareness Toolkit: A Prevention Guide. <https://www.marshallhealth.org/media/2085/cabell-county-prescription-opioid-and-heroin-awareness-toolkit.pdf>. Accessed August 1, 2020.
- <sup>525</sup> Felitti VJ, Anda RF, Nordenberg D, Williamson DF, Spitz AM, Edwards V, Marks JS. Relationship of Childhood Abuse and Household Dysfunction to Many of the Leading Causes of Death in Adults: The Adverse Childhood Experiences (ACE) Study. *American Journal of Preventive Medicine*. 1998;14:245-58.
- <sup>526</sup> Centers for Disease Control and Prevention. About the CDC-Kaiser ACE Study. <https://www.cdc.gov/violenceprevention/acestudy/about.html>. Accessed August 1, 2020.
- <sup>527</sup> West Virginia Department of Health and Human Resources. HSC Statistical Brief No. 30 Adverse Childhood Experiences. [http://www.wvdhhr.org/bph/hsc/pubs/briefs/030/Brief30\\_Adverse\\_Childhood\\_Experiences.pdf](http://www.wvdhhr.org/bph/hsc/pubs/briefs/030/Brief30_Adverse_Childhood_Experiences.pdf). Published 2015. Accessed August 1, 2020.
- <sup>528</sup> Hooten WM. Chronic Pain and Mental Health Disorders: Shared Neural Mechanisms, Epidemiology, and Treatment. *Mayo Clinic Proceedings*. 2016;91:955-970.
- <sup>529</sup> Carroll LJ, Cassidy JD, Côté P. Factors Associated With the Onset of an Episode of Depressive Symptoms in the General Population. *Journal of Clinical Epidemiology*. 2003;56:651-8.
- <sup>530</sup> Christidis P, Lin L, Stamm K. An Unmet Need for Mental Health Services. *Monitor on Psychology*. 2018;49:19.
- <sup>531</sup> Health Resources and Services Administration. Available at: <https://data.hrsa.gov/tools/shortage-area/hpsa-find> (Accessed July 16, 2020).
- <sup>532</sup> West Virginia Center For Children's Justice. Handle With Care. <http://www.handlewithcarewv.org/handle-with-care.php>. Accessed August 1, 2020.
- <sup>533</sup> Pennington H. School Social Workers Bring Positive Impact to Struggling Students. [https://www.herald-dispatch.com/news/putnam\\_news/school-social-workers-bring-positive-impact-to-struggling-students/article\\_1e09037e-d4a1-5424-abcd-f2de53407932.html](https://www.herald-dispatch.com/news/putnam_news/school-social-workers-bring-positive-impact-to-struggling-students/article_1e09037e-d4a1-5424-abcd-f2de53407932.html). Published 2020. Accessed August 1, 2020.
- <sup>534</sup> Feigelman W, Feigelman B, Range LM. Grief and Healing Trajectories of Drug-Death-Bereaved Parents. *Journal of Death and Dying*. 2020;80:629-647.
- <sup>535</sup> Waugh A, Kiemle G, Slade P. What Aspects of Post-Traumatic Growth Are Experienced by Bereaved Parents? A Systematic Review. *European Journal of Psychotraumatology*. 2018;9:1506230.

- <sup>536</sup> Cherkin DC, Sherman KJ, Balderson BH, Cook AJ, Anderson ML, Hawkes RJ, Hansen KE, Turner JA. Effect of Mindfulness-Based Stress Reduction vs Cognitive Behavioral Therapy or Usual Care on Back Pain and Functional Limitations in Adults With Chronic Low Back Pain: A Randomized Clinical Trial. *JAMA*. 2016;315:1240-1249.
- <sup>537</sup> Åkerblom S, Perrin S, Fischer MR, McCracken LM. The Mediating Role of Acceptance in Multidisciplinary Cognitive-Behavioral Therapy for Chronic Pain. *The Journal of Pain*. 2015;16:606-15.
- <sup>538</sup> Foy JM, Green CM, Earls MF. Committee on Psychosocial Aspects of Child and Family Health, Mental Health Leadership Group. Mental Health Competencies for Pediatric Practice. *Pediatrics*. 2019;144:e20192757.
- <sup>539</sup> Center for Disease Control and Prevention. Prescription Painkiller Overdoses: A Growing Epidemic, Especially Among Women. <http://www.cdc.gov/vitalsigns/prescriptionpainkilleroverdoses/index.html>. Accessed August 1, 2020.
- <sup>540</sup> Health Resources & Services Administration. Rural Communities Opioid Response Program – Planning. <https://www.hrsa.gov/grants/find-funding/hrsa-18-116?id=35ee358e-d42f-4c7a-ba6e-d71f228eb1a9>. Published 2018. Accessed August 1, 2020.
- <sup>541</sup> Desai RJ, Hernandez-Diaz S, Bateman BT, Huybrechts KF. Increase in Prescription Opioid Use During Pregnancy Among Medicaid-Enrolled Women. *Obstetrics and Gynecology*. 2014;123:997.
- <sup>542</sup> Bateman BT, Hernandez-Diaz S, Rathmell JP, Seeger JD, Doherty M, Fischer MA, Huybrechts KF. Patterns of Opioid Utilization in Pregnancy in a Large Cohort of Commercial Insurance Beneficiaries in the United States. *Anesthesiology*. 2014;120:1216-1224.
- <sup>543</sup> Patrick SW, Davis MM, Lehmann CU, Cooper WO. Increasing Incidence and Geographic Distribution of Neonatal Abstinence Syndrome: United States 2009 to 2012. *Journal of Perinatology*. 2015;35:650.
- <sup>544</sup> Coyle MG, Brogly SB, Ahmed MS, Patrick SW, Jones HE. Neonatal Abstinence Syndrome. *Nature Reviews Disease Primers*. 2018;4:1-17.
- <sup>545</sup> West Virginia Department of Health and Human Resources. Percent of Neonatal Abstinence Syndrome (NAS). <https://dhhr.wv.gov/bph/Documents/ODCP%20Reports%202017/NAS%20DATA%202017.pdf>. Published 2017. Accessed August 1, 2020.
- <sup>546</sup> MOMS Program: Maternal Opiate Medical Support. HUNT\_00092810.
- <sup>547</sup> Number of newborns exposed in utero to opioids or diagnosed with neonatal abstinence syndrome. HUNT\_ESI\_REV\_001751284.
- <sup>548</sup> Substance Abuse and Mental Health Services Administration. Clinical Guidance for Treating Pregnant and Parenting Women with Opioid Use Disorder and Their Infants. <https://store.samhsa.gov/product/Clinical-Guidance-for-Treating-Pregnant-and-Parenting-Women-With-Opioid-Use-Disorder-and-Their-Infants/SMA18-5054>. Published 2018. Accessed August 1, 2020.
- <sup>549</sup> American College of Obstetricians and Gynecologists. ACOG Committee Opinion, Opioid Use and Opioid Use Disorder in Pregnancy. <https://www.acog.org/Clinical-Guidance-and-Publications/Committee-Opinions/Committee-on-Obstetric-Practice/Opioid-Use-and-Opioid-Use-Disorder-in-Pregnancy#6>. Published 2017. Accessed August 1, 2020.
- <sup>550</sup> Stulac S, Bair-Merritt M, Wachman EM, Augustyn M, Howard C, Madoor N, Costello E. Children and Families of the Opioid Epidemic: Under the Radar. *Current Problems in Pediatric and Adolescent Health Care*. 2019;49(8):100637.

- <sup>551</sup> Parolin M, Simonelli A. Attachment Theory and Maternal Drug Addiction: The Contribution to Parenting Interventions. *Frontiers in Psychiatry*. 2016;7:152.
- <sup>552</sup> Substance Abuse and Mental Health Services Administration. Family-Centered Treatment for Women With Substance Use Disorders: History, Key Elements and Challenges. [https://www.samhsa.gov/sites/default/files/family\\_treatment\\_paper508v.pdf](https://www.samhsa.gov/sites/default/files/family_treatment_paper508v.pdf). Published 2007. Accessed August 1, 2020.
- <sup>553</sup> American College of Obstetricians and Gynecologists. ACOG Committee Opinion, Opioid Use and Opioid Use Disorder in Pregnancy. <https://www.acog.org/Clinical-Guidance-and-Publications/Committee-Opinions/Committee-on-Obstetric-Practice/Opioid-Use-and-Opioid-Use-Disorder-in-Pregnancy#6>. Published 2017. Accessed August 1, 2020.
- <sup>554</sup> D’Onofrio G, O’Connor PG, Pantalon MV, Chawarski MC, Busch SH, Owens PH, Bernstein SL, Fiellin DA. Emergency Department–Initiated Buprenorphine/Naloxone Treatment for Opioid Dependence: A Randomized Clinical Trial. *JAMA*. 2015;313:1636-1644.
- <sup>555</sup> Lilly CL, Ruhnke AM, Breyel J, Umer A, Leonard CE. Drug Free Moms and Babies: Qualitative and Quantitative Program Evaluation Results From a Rural Appalachian State. *Preventive Medicine Reports*. 2019;15:100919.
- <sup>556</sup> Division of Addiction Sciences, Marshall University Joan C. Edwards School of Medicine. City of Solutions. <http://philanthropywv.org/content/uploads/2019/11/COS-Guidebook-Finalized-as-of-9-26-19.pdf>. Published 2019. Accessed August 1, 2020.
- <sup>557</sup> Division of Addiction Sciences, Marshall University Joan C. Edwards School of Medicine. City of Solutions. <http://philanthropywv.org/content/uploads/2019/11/COS-Guidebook-Finalized-as-of-9-26-19.pdf>. Published 2019. Accessed August 1, 2020.
- <sup>558</sup> Coyle MG, Brogly SB, Ahmed MS, Patrick SW, Jones HE. Neonatal Abstinence Syndrome. *Nature Reviews Disease Primers*. 2018;4:1-17.
- <sup>559</sup> Nellhaus EM, Nieuwenhuizen L, Eggleton R, Hansen Z, Chaffin D, Loudin S, Davies TH. History of Postpartum Depression as a Contributor to the Severity Of NAS. *Addictive Behaviors*. 2019;89:78-84.
- <sup>560</sup> Lily’s Place: A Neonatal Abstinence Syndrome Center. <https://lilysplace.org/about>. Accessed August 1, 2020.
- <sup>561</sup> Substance Abuse and Mental Health Services Administration. Family-Centered Treatment for Women With Substance Use Disorders: History, Key Elements and Challenges. [https://www.samhsa.gov/sites/default/files/family\\_treatment\\_paper508v.pdf](https://www.samhsa.gov/sites/default/files/family_treatment_paper508v.pdf). Published 2007. Accessed August 1, 2020.
- <sup>562</sup> Substance Abuse and Mental Health Services Administration. Clinical Guidance for Treating Pregnant and Parenting Women with Opioid Use Disorder and Their Infants. <https://store.samhsa.gov/product/Clinical-Guidance-for-Treating-Pregnant-and-Parenting-Women-With-Opioid-Use-Disorder-and-Their-Infants/SMA18-5054>. Published 2018. Accessed August 1, 2020.
- <sup>563</sup> Division of Addiction Sciences, Marshall University Joan C. Edwards School of Medicine. City of Solutions. <http://philanthropywv.org/content/uploads/2019/11/COS-Guidebook-Finalized-as-of-9-26-19.pdf>. Published 2019. Accessed August 1, 2020.
- <sup>564</sup> Substance Abuse and Mental Health Services Administration. National Survey on Drug Use and Health (NSDUH): 2005. <https://www.samhsa.gov/data/report/2005-nsduh-detailed-tables>. Published 2006. Accessed March 25, 2020.

- <sup>565</sup> Substance Abuse and Mental Health Services Administration. National Survey on Drug Use and Health (NSDUH): 2018. <https://www.samhsa.gov/data/report/2018-nsduh-detailed-tables>. Published August 20, 2019. Accessed March 25, 2020.
- <sup>566</sup> Substance Abuse and Mental Health Services Administration. 2014 National Survey on Drug Use and Health. Rockville, MD: Center for Behavioral Health Statistics and Quality. <https://www.samhsa.gov/data/sites/default/files/NSDUHsubstateAgeGroupTabs2014/NSDUHsubstateAgeGroupTabs2014.pdf>. Accessed March 25, 2020.
- <sup>567</sup> Great Rivers Regional System for Addiction Care, Cabell County. Prescription Opioid and Heroin Awareness Toolkit: A Prevention Guide. <https://www.marshallhealth.org/media/2085/cabell-county-prescription-opioid-and-heroin-awareness-toolkit.pdf>. Accessed August 1, 2020.
- <sup>568</sup> Comer S, Cunningham C, Fishman MJ, Gordon FA, Kampman FK, Langleben D, Nordstrom B, Oslin D, Woody G, Wright T, Wyatt S. National Practice Guideline for the Use of Medications in the Treatment of Addiction Involving Opioid Use. American Society of Addiction. 2015;66.
- <sup>569</sup> Office of Juvenile Justice and Delinquency Prevention. Consequences of Youth Substance Abuse. <https://www.ojjdp.gov/pubs/drugid/ration-03.html>. Published May 1998. Accessed February 15, 2020.
- <sup>570</sup> Winters KC, Arria A. Adolescent Brain Development and Drugs. The Prevention Researcher. 2011;18:21.
- <sup>571</sup> Blue Prints for Healthy Youth Development. Available at: <https://www.blueprintsprograms.org>. Accessed February 15, 2020.
- <sup>572</sup> Griffin KW, Botvin GJ. Evidence-Based Interventions for Preventing Substance Use Disorders in Adolescents. Child and Adolescent Psychiatric Clinics. 2010;19:505-526.
- <sup>573</sup> Strøm HK, Adolfsen F, Fossum S, Kaiser S, Martinussen M. Effectiveness of School-Based Preventive Interventions on Adolescent Alcohol Use: A Meta-Analysis of Randomized Controlled Trials. Substance Abuse Treatment, Prevention, and Policy. 2014;9:48.
- <sup>574</sup> Botvin Life Skills Training. Available at: <https://www.lifeskillstraining.com/fact-sheet>. Accessed February 15, 2020.
- <sup>575</sup> Winters KC. Treatment of Adolescents with Substance Use Disorders: Treatment Improvement Protocol (TIP) Series 32. Substance Abuse and Mental Health Services Administration. <https://pa.performcare.org/assets/pdf/providers/quality-improvement/cpg/cpg-sud-tip-32-full.pdf>. Published 1999. Accessed February 15, 2020.
- <sup>576</sup> Bernstein SL, D’Onofrio G. Screening, Treatment Initiation, and Referral for Substance Use Disorders. Addiction Science & Clinical Practice. 2017;12:18.
- <sup>577</sup> Bernstein SL, D’Onofrio G. Screening, Treatment Initiation, and Referral for Substance Use Disorders. Addiction Science & Clinical Practice. 2017;12:18.
- <sup>578</sup> Bernstein SL, D’Onofrio G, Rosner J, O’Malley S, Makuch R, Busch S, Pantalon MV, Toll B. Successful Tobacco Dependence Treatment Achieved via Pharmacotherapy and Motivational Interviewing in Low-Income Emergency Department Patients. Annals of Emergency Medicine. 2015;66:140–7.
- <sup>579</sup> D’Onofrio G, O’Connor PG, Pantalon MV, Chawarski MC, Busch SH, Owens PH, Bernstein SL, Fiellin DA. Emergency Department–Initiated Buprenorphine/Naloxone Treatment for Opioid Dependence: A Randomized Clinical Trial. JAMA. 2015;313:1636-1644.



<sup>580</sup> Division of Addiction Sciences, Marshall University Joan C. Edwards School of Medicine. City of Solutions. <http://philanthropywv.org/content/uploads/2019/11/COS-Guidebook-Finalized-as-of-9-26-19.pdf>. Published 2019. Accessed April 25, 2020.

<sup>581</sup> U.S. Department of Health and Human Services, Administration for Children and Families, Administration on Children, Youth and Families, Children's Bureau. Adoption and Foster Care Analysis and Reporting System (AFCARS) Foster Care File FY 2002-2017. National Data Archive on Child Abuse and Neglect. <https://ndacan.cornell.edu>. Accessed February 15, 2020.

<sup>582</sup> Kohomban J, Rodriguez J, Haskins R. The Foster Care System Was Unprepared for the Last Drug Epidemic—Let's Not Repeat History. The Brookings Institute. <https://www.brookings.edu/blog/up-front/2018/01/31/the-foster-care-system-was-unprepared-for-the-last-drug-epidemic-lets-not-repeat-history>. Published January 31, 2018. Accessed February 15, 2020.

<sup>583</sup> US Department of Health and Human Services, Administration for Children and Families, Administration on Children, Youth and Families, Children's Bureau. The AFCARS Report: Preliminary FY 2016 Estimates as of October 20, 2017 (No. 24). <https://www.acf.hhs.gov/sites/default/files/cb/afcarsreport24.pdf>. Published 2017. Accessed February 15, 2020.

<sup>584</sup> Young NK, Boles S, Otero C. Parental Substance Use Disorders and Child Maltreatment: Overlap, Gaps, and Opportunities. *Child Maltreatment*. 2007;12:137-149.

<sup>585</sup> Seay K. How many Families in Child Welfare Services are Affected by Parental Substance Use Disorders? A Common Question that Remains Unanswered. *Child Welfare*. 2015;94:19-51.

<sup>586</sup> Wulczyn F, Ernst M, Fisher P. Who Are the Infants in Out-Of-Home Care? an Epidemiological and Developmental Snapshot. Chapin Hall Issue Brief. [https://www.acf.hhs.gov/sites/default/files/cb/es2011\\_session\\_101\\_handout.pdf](https://www.acf.hhs.gov/sites/default/files/cb/es2011_session_101_handout.pdf). Published May 2011. Accessed February 15, 2020.

<sup>587</sup> Lipari R, Van Horn SL. Children Living With Parents Who Have a Substance Use Disorder. [https://www.samhsa.gov/data/sites/default/files/report\\_3223/ShortReport-3223.pdf](https://www.samhsa.gov/data/sites/default/files/report_3223/ShortReport-3223.pdf). Published August 24, 2017. Accessed February 15, 2020.

<sup>588</sup> Brundage SC, Levine C. the Ripple Effect: The Impact of the Opioid Epidemic on Children and Families. United Hospital Fund and Milbank Memorial Fund. [https://uhfnyc.org/media/filer\\_public/6e/80/6e80760f-d579-46a3-998d-1aa816ab06f6/uhf\\_ripple\\_effect\\_national\\_and\\_state\\_estimates\\_chartbook.pdf](https://uhfnyc.org/media/filer_public/6e/80/6e80760f-d579-46a3-998d-1aa816ab06f6/uhf_ripple_effect_national_and_state_estimates_chartbook.pdf). Published 2019. Accessed February 15, 2020.

<sup>589</sup> Radel L, Baldwin M, Crouse G, Ghertner R, Waters A. Substance Use, the Opioid Epidemic, and the Child Welfare System: Key Findings from a Mixed Methods Study. <https://aspe.hhs.gov/system/files/pdf/258836/SubstanceUseChildWelfareOverview.pdf>. Published March 7, 2018. Accessed February 15, 2020.

<sup>590</sup> Jee SH, Szilagyi M, Augustyn M. Comprehensive Health Care for Children in Foster Care. <https://www.uptodate.com/contents/comprehensive-health-care-for-children-in-foster-care>. Published May 22, 2019. Accessed February 15, 2020.

<sup>591</sup> North American Council on Adoptable Children. 2016 Saw More Children in Foster Care and More Adopted. <https://www.nacac.org/2018/01/08/2016-saw-more-children-in-foster-care-and-more-adopted>. Published 2016. Accessed February 15, 2020.

- <sup>592</sup> Child Welfare Information Gateway. Parent-Child Interaction Therapy With At-Risk Families. [https://www.childwelfare.gov/pubPDFs/f\\_interactbulletin.pdf](https://www.childwelfare.gov/pubPDFs/f_interactbulletin.pdf). Published January 2013. Accessed February 26, 2020.
- <sup>593</sup> DePanfilis D, Salus M K. Child Protective Services: A Guide for Caseworkers. <https://www.childwelfare.gov/pubPDFs/cps.pdf>. Published 2003. Accessed February 15, 2020.
- <sup>594</sup> Browne CH. The Strengthening Families Approach and Protective Factors Framework: Branching Out and Reaching Deeper. [http://www.cabellfrn.org/wp-content/uploads/2016/08/The-Strengthening-Families-Approach-and-Protective-Factors-Framework\\_Branching-Out-and-Reaching-Deeper.pdf](http://www.cabellfrn.org/wp-content/uploads/2016/08/The-Strengthening-Families-Approach-and-Protective-Factors-Framework_Branching-Out-and-Reaching-Deeper.pdf). Published September 2014. Accessed February 26, 2020.
- <sup>595</sup> Marshall Health. KIDS Clinic. <https://www.marshallhealth.org/locations/kids-clinic>. Accessed February 26, 2020.
- <sup>596</sup> U.S. Department of Housing and Urban Development, Office of Policy Development and Research. Measuring Housing Insecurity in the American Housing Survey. <https://www.huduser.gov/portal/pdredge/pdr-edge-firm-asst-sec-111918.html>. Accessed February 26, 2020.
- <sup>597</sup> U.S. Department of Housing and Urban Development. 2019 Continuum of Care Homeless Assistance Programs Homeless Populations and Subpopulations. [https://files.hudexchange.info/reports/published/CoC\\_PopSub\\_CoC\\_WV-501-2019\\_WV\\_2019.pdf](https://files.hudexchange.info/reports/published/CoC_PopSub_CoC_WV-501-2019_WV_2019.pdf). Published September 19, 2019. Accessed February 26, 2020.
- <sup>598</sup> Tsai J, Kaspro WJ, Rosenheck RA. Latent Homeless Risk Profiles of a National Sample of Homeless Veterans and Their Relation to Program Referral and Admission Patterns. *American Journal of Public Health*. 2013;103:S239-247.
- <sup>599</sup> U.S. Conference of Mayors. Hunger and Homeless Survey: A Status Report on Hunger and Homelessness in America's Cities. Washington, DC: U.S. Conference of Mayors. Published December 2014. Accessed February 26, 2020.
- <sup>600</sup> Hansen L, Penko J, Guzman D, Bangsberg DR, Miaskowski C, Kushel MB. Aberrant Behaviors With Prescription Opioids and Problem Drug Use History in a Community-Based Cohort of HIV-Infected Individuals. *Journal of Pain and Symptom Management*. 2011;42:893-902.
- <sup>601</sup> U.S. Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation. Housing Options for Recovery for Individuals with Opioid Use Disorder: A Literature Review. <https://aspe.hhs.gov/system/files/pdf/261951/OUdlr.pdf>. Published June 2019. Accessed February 15, 2020.
- <sup>602</sup> Baggett TP, Hwang SW, O'Connell JJ, Porneala BC, Stringfellow EJ, Orav EJ, Singer DE, Rigotti NA. Mortality Among Homeless Adults in Boston: Shifts in Causes of Death Over a 15-Year Period. *JAMA Internal Medicine*. 2013;173:189-95.
- <sup>603</sup> National Health Care for the Homeless Council. Fact Sheet: Addressing the Opioid Epidemic. <https://nhchc.org/wp-content/uploads/2019/08/nhchc-opioid-fact-sheet-august-2017.pdf>. Published August 2017. Accessed February 15, 2020.
- <sup>604</sup> Rhoades H, Winetrobe H, Rice E. Prescription Drug Misuse Among Homeless Youth. *Drug and Alcohol Dependence*. 2014;138:229-33.
- <sup>605</sup> U.S. Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation. Housing Options for Recovery for Individuals with Opioid Use Disorder: A Literature Review. <https://aspe.hhs.gov/system/files/pdf/261951/OUdlr.pdf>. Published June 2019. Accessed February 15, 2020.

- <sup>606</sup> Gabrielian S, Young AS, Greenberg JM, Bromley E. Social Support and Housing Transitions Among Homeless Adults With Serious Mental Illness and Substance Use Disorders. *Psychiatric Rehabilitation Journal*. 2018;41:208.
- <sup>607</sup> U.S. Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation. *Housing Options for Recovery for Individuals with Opioid Use Disorder: A Literature Review*. <https://aspe.hhs.gov/system/files/pdf/261951/OUdlr.pdf>. Published June 2019. Accessed February 15, 2020.
- <sup>608</sup> U.S. Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation. *Housing Options for Recovery for Individuals with Opioid Use Disorder: A Literature Review*. <https://aspe.hhs.gov/system/files/pdf/261951/OUdlr.pdf>. Published June 2019. Accessed February 15, 2020.
- <sup>609</sup> Appel PW, Tsemberis S, Joseph H, Stefancic A, Lambert-Wacey D. Housing First for severely mentally ill homeless methadone patients. *Journal of Addictive Diseases*. 2012;31:270-7.
- <sup>610</sup> Ashwood, J. Scott, Karishma Patel, David Kravitz, David M. Adamson, and M. Audrey Burnam, Evaluation of the Homeless Multidisciplinary Street Team for the City of Santa Monica. Santa Monica, CA: RAND Corporation, 2019. [https://www.rand.org/pubs/research\\_reports/RR2848.html](https://www.rand.org/pubs/research_reports/RR2848.html). Published 2019. Accessed February 15, 2020.
- <sup>611</sup> United States Department of Housing and Urban Development. The 2019 Annual Homeless Report (AHAR) to Congress. <https://files.hudexchange.info/resources/documents/2019-AHAR-Part-1.pdf>. Published January 2020. Accessed July 16, 2020.
- <sup>612</sup> National Association of Recovery Residences. NARR Levels of Recovery Support. [https://narronline.org/wp-content/uploads/2016/12/NARR\\_levels\\_summary.pdf](https://narronline.org/wp-content/uploads/2016/12/NARR_levels_summary.pdf). Published 2016. Accessed February 15, 2020.
- <sup>613</sup> Thom K. Recovery Homes Help People in Early Recovery. <https://www.samhsa.gov/homelessness-programs-resources/hpr-resources/recovery-homes-help-people>. Published April 19, 2016. Accessed February 15, 2020.
- <sup>614</sup> Reif S, George P, Braude L, Daugherty RH, Daniels AS, Ghose SS, Delphin-Rittmon AE. Recovery Housing: Assessing the Evidence. *Psychiatric Services*. 2014;65:295-300.
- <sup>615</sup> United States Government Accountability Office. Substance Use Disorder: Information on Recovery Housing Prevalence, Selected States' Oversight, and Funding (GAO-18-315). <https://www.gao.gov/assets/700/690831.pdf>. Published March 2018. Accessed February 15, 2020.
- <sup>616</sup> Beck E. WV Lawmakers Fix Recovery Residence Safety Bill. *The Register-Herald*. [https://www.register-herald.com/news/state\\_region/wv-lawmakers-fix-recovery-residence-safetybill/article\\_b3489641-c2b6-50b3-b8d9-5d3fba33c0e0.html](https://www.register-herald.com/news/state_region/wv-lawmakers-fix-recovery-residence-safetybill/article_b3489641-c2b6-50b3-b8d9-5d3fba33c0e0.html). Published 21 May 2019. Accessed July 29, 2020.
- <sup>617</sup> National Institute of Drug Abuse. Misuse of Prescription Drugs. <https://www.drugabuse.gov/publications/misuse-prescription-drugs/overview>. Published December 2018. Accessed February 15, 2020.
- <sup>618</sup> McCance-Katz EF. The National Survey on Drug Use and Health. Substance Abuse and Mental Health Services Administration. <https://www.samhsa.gov/data/sites/default/files/nsduh-ppt-09-2018.pdf>. Published 2017. February 15, 2020.
- <sup>619</sup> Han B, Compton WM, Blanco C, Crane E, Lee J, Jones CM. Prescription Opioid Use, Misuse and Use Disorders in U.S. Adults: 2015 National Survey on Drug Use and Health. *Annals of Internal Medicine*. 2017;167:293-301.
- <sup>620</sup> McCance-Katz EF. The National Survey on Drug Use and Health. Substance Abuse and Mental Health Services Administration. <https://www.samhsa.gov/data/sites/default/files/nsduh-ppt-09-2018.pdf>. Published 2017. Accessed February 15, 2020.

- <sup>621</sup> McCance-Katz EF. The National Survey on Drug Use and Health. Substance Abuse and Mental Health Services Administration. <https://www.samhsa.gov/data/sites/default/files/nsduh-ppt-09-2018.pdf>. Published 2017. Accessed February 15, 2020.
- <sup>622</sup> National Conference on State Legislation. Prescribing Policies: States Confront Opioid Overdose Epidemic. <http://www.ncsl.org/research/health/prescribing-policies-states-confront-opioid-overdose-epidemic.aspx>. Published June 30, 2019. Accessed February 15, 2020.
- <sup>623</sup> Barnett ML, Olenski AR, Jena AB. Opioid-Prescribing Patterns of Emergency Physicians and Risk of Long-Term Use. *New England Journal of Medicine*. 2017;376:663-673.
- <sup>624</sup> Shah A, Hayes CJ, Martin BC. Characteristics of Initial Prescription Episodes and Likelihood of Long-Term Opioid Use — United States, 2006–2015. *Morbidity and Mortality Weekly Report*. 2017;66:265-269.
- <sup>625</sup> Deyo RA, Hallvik SE, Hildebran C, Marino M, Dexter E, Irvine JM, O’Kane N, Van Otterloo J, Wright DA, Leichtling G, Millet LM. Association Between Initial Opioid Prescribing Patterns and Subsequent Long-Term Use Among Opioid-Naïve Patients: A Statewide Retrospective Cohort Study. *Journal of General Internal Medicine*. 2017;32:21-27.
- <sup>626</sup> Deposition of Steve Williams, Mayor, City of Huntington, in this litigation, June 30, 2020, pages 272-273.
- <sup>627</sup> U.S. Department of Human and Health Services. 5-Point Strategy To Combat the Opioid Crisis. <https://www.hhs.gov/opioids/about-the-epidemic/hhs-response/index.html>. Published August 7, 2018. Accessed February 15, 2020.
- <sup>628</sup> Division of Addiction Sciences, Marshall University Joan C. Edwards School of Medicine. City of Solutions. <http://philanthropywv.org/content/uploads/2019/11/COS-Guidebook-Finalized-as-of-9-26-19.pdf>. Published 2019. Accessed April 25, 2020.
- <sup>629</sup> Pain Management and the Opioid Epidemic: Balancing Societal and Individual Benefits and Risks of Prescription Opioid Use. National Academies of Sciences, Engineering, and Medicine; Health and Medicine Division; Board on Health Sciences Policy; Committee on Pain Management and Regulatory Strategies to Address Prescription Opioid Abuse; Phillips JK, Ford MA, Bonnie RJ, editors. Washington (DC): National Academies Press (US); 2017.
- <sup>630</sup> National Institutes of Health. About the NIH HEAL Initiative. <https://www.nih.gov/research-training/medical-research-initiatives/heal-initiative>. Published 2018. Accessed February 15, 2020.
- <sup>631</sup> Ma J, Bao YP, Wang RJ, Su MF, Liu MX, Li JQ, Degenhardt L, Farrell M, Blow FC, Ilgen M, Shi J. Effects of Medication-Assisted Treatment on Mortality Among Opioids Users: A Systematic Review and Meta-Analysis. *Molecular Psychiatry*. 2019;24:1868-83.
- <sup>632</sup> Sordo L, Barrio G, Bravo MJ, Indave BI, Degenhardt L, Wiessing L, Ferri M, Pastor-Barriuso R. Mortality Risk During and After Opioid Substitution Treatment: Systematic Review and Meta-Analysis of Cohort Studies. *BMJ*. 2017;26:357.
- <sup>633</sup> Ettner SL, Huang D, Evans E, Rose Ash D, Hardy M, Jourabchi M, Hser YI. Benefit–Cost in the California Treatment Outcome Project: Does Substance Abuse Treatment “Pay for Itself”? *Health Services Research*. 2006;41:192-213.
- <sup>634</sup> Gerstein DR, Johnson RA, Harwood HJ, Fountain D, Suter N, Malloy K. Evaluating Recovery Services: The California Drug and Alcohol Treatment Assessment (CalDATA) General Report. Sacramento, CA: California Department of Alcohol and Drug Programs. 1994.

- <sup>635</sup> Naumann RB, Durrance CP, Ranapurwala SI, Austin AE, Proescholdbell S, Childs R, Marshall SW, Kansagra S, Shanahan ME. Impact of a Community-Based Naloxone Distribution Program on Opioid Overdose Death Rates. *Drug and Alcohol Dependence*. 2019;204:107536.
- <sup>636</sup> Coffin PO, Sullivan SD. Cost-Effectiveness of Distributing Naloxone to Heroin Users for Lay Overdose Reversal. *Annals of Internal Medicine*. 2013;158:1-9.
- <sup>637</sup> Nguyen TQ, Weir BW, Des Jarlais DC, Pinkerton SD, Holtgrave DR. Syringe Exchange in the United States: A National Level Economic Evaluation of Hypothetical Increases in Investment. *AIDS and Behavior*. 2014;18:2144-55.
- <sup>638</sup> Belani HK, Muennig PA. Cost-Effectiveness of Needle and Syringe Exchange for the Prevention of HIV in New York City. *Journal of HIV/AIDS & Social Services*. 2008;7:229-40.
- <sup>639</sup> Delaney, J. *The Right Answer: How We Can Unify Our Divided Nation*. Henry Holt and Company, Macmillan Publishing Group. New York, New York, 2018.
- <sup>640</sup> Homer J, Wakeland WW. A Dynamic Model of the Opioid Drug Epidemic with Implications for Policy. *The American Journal of Drug and Alcohol Abuse*. 2020:1-1.
- <sup>641</sup> Pitt AL, Humphreys K, Brandeau ML. Modeling Health Benefits and Harms of Public Policy Responses to the Us Opioid Epidemic. *American Journal of Public Health*. 2018;108:1394-400.
- <sup>642</sup> Wakeland W, Nielsen A, Geissert P. Dynamic Model of Nonmedical Opioid Use Trajectories and Potential Policy Interventions. *the American Journal of Drug and Alcohol Abuse*. 2015;41:508-18.
- <sup>643</sup> Chen Q, Larochelle MR, Weaver DT, Lietz AP, Mueller PP, Mercaldo S, Wakeman SE, Freedberg KA, Raphael TJ, Knudsen AB, Pandharipande PV. Prevention of Prescription Opioid Misuse and Projected Overdose Deaths in the United States. *JAMA Network Open*. 2019;2:e187621.
- <sup>644</sup> Irvine MA, Kuo M, Buxton JA, Balshaw R, Otterstatter M, Macdougall L, Milloy MJ, Bharmal A, Henry B, Tyndall M, Coombs D. Modelling the Combined Impact of Interventions in Averting Deaths During a Synthetic-Opioid Overdose Epidemic. *Addiction*. 2019;114:1602-13.
- <sup>645</sup> Deposition of Jan Rader, Fire Chief, Huntington Fire Department, in this litigation, June 17, 2020, page 49.
- <sup>646</sup> Kertesz SG, Gordon AJ, Satel SL. Opioid Prescription Control: When The Corrective Goes Too Far. *Health Affairs Blog*. <https://www.healthaffairs.org/doi/10.1377/hblog20180117.832392/full/>. Published January 19, 2018. Accessed May 5, 2020.
- <sup>647</sup> Sullum J. New Survey Data Confirm That Opioid Deaths Do Not Correlate with Pain Pill Abuse or Addiction Rates. <https://reason.com/2019/08/21/new-survey-data-confirm-that-opioid-deaths-do-not-correlate-with-pain-pill-abuse-or-addiction-rates/>. Published August 21, 2019. Accessed May 5, 2020.
- <sup>648</sup> Volkow ND, McLellan AT. Opioid Abuse in Chronic Pain—Misconceptions and Mitigation Strategies. *New England Journal of Medicine*. 2016;374:1253-1263.
- <sup>649</sup> Lipari RN, Hughes A. How poeple obtain the prescription pain relievers they misuse. *CBHSQ Rep*. 2017.
- <sup>650</sup> Cicero TJ, Kurtz SP, Surratt HL, et al. Multiple Determinants of Specific Modes of Prescription Opioid Diversion. *J Drug Issues*. 2011;41(2):283-304. <https://www.ncbi.nlm.nih.gov/pubmed/22287798>.
- <sup>651</sup> Shei A, Rice JB, Kirson NY, et al. Sources of prescription opioids among diagnosed opioid abusers. *Curr Med Res Opin*. 2015;31(4):779-784. doi:10.1185/03007995.2015.1016607

<sup>652</sup> National Institute of Drug Abuse. Effective Treatments for Opioid Addiction. <https://www.drugabuse.gov/publications/effective-treatments-opioid-addiction/effective-treatments-opioid-addiction>. Published 2016. Accessed March 11, 2019.

<sup>653</sup> Mattick RP, Breen C, Kimber J, Davoli M. Buprenorphine Maintenance Versus Placebo or Methadone Maintenance for Opioid Dependence. Cochrane Database of Systematic Reviews. 2014(2).

<sup>654</sup> U.S. Department of Justice, National Institute of Corrections. Cost Benefit Analysis of Adult Drug Courts. <https://nicic.gov/cost-benefit-analysis-adult-drug-courts>. Published 2013. Accessed February 15, 2020.

<sup>655</sup> Holtgrave DR, Pinkerton SD, Jones TS, Lurie P, Vlahov D. Cost and Cost-Effectiveness of Increasing Access to Sterile Syringes and Needles as an HIV Prevention Intervention in the United States. Journal of Acquired Immune Deficiency Syndromes and Human Retrovirology. 1998;18:S133-138.

<sup>656</sup> Coffin PO, Sullivan SD. Cost-Effectiveness of Distributing Naloxone to Heroin Users for Lay Overdose Reversal. Annals of Internal Medicine. 2013;158:1-9.

<sup>657</sup> Barnett PG. The Cost-Effectiveness of Methadone Maintenance as a Health Care Intervention. Addiction. 1999;94:479-488.

<sup>658</sup> Murphy SM, Polsky D. Economic Evaluations of Opioid Use Disorder Interventions: A Systematic Review. Pharmacoeconomics. 2016;34:863-887.

<sup>659</sup> Washington State Institute for Public Policy. Benefit-Cost Results. <http://www.wsipp.wa.gov/BenefitCost>. Accessed February 15, 2020.